



Project  
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## **ENPI Water-DROP Project II-B/4.3/0617**



# **Integrated Water Resources Management GUIDELINES for the MEDITERRANEAN BASIN**

**June 2016**



**Regione Toscana**

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**WATER-DROP PARTNERSHIP**



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This publication contains the recommendations gathered throughout the period of implementation of the Water-DROP II-B/4.3/0617 project. The project was financed by means of the European Neighbourhood and Partnership Instrument (ENPI) for the 2007-2013 period, which aims at reinforcing cooperation between the European Union and partner Countries regions placed along the shores of the Mediterranean Sea. These Guidelines constitute an output of the project itself.



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## Contents

Executive summary.....	2
1. Background details: The ENPI Water-DROP II-B/4.3/0617 project.....	3
The project.....	3
The road map: methodologies and outputs for supporting the IWRM approach.....	4
2. The semi-arid areas within the context of the European legislation.....	5
3. The stakeholders survey: Needs and constraints for the IWRM implementation.....	8
Italy.....	8
Jordan.....	9
Lebanon.....	9
Palestinian Territories.....	9
4. The analysis of the in-force regulatory context: Proposals of normative improvements on water management for the Target Countries.....	11
Italy.....	11
Jordan.....	11
Lebanon.....	12
Palestinian Territories.....	14
5. Towards an integrated approach within the Mediterranean basin: Recommendations for the water management normative harmonization.....	16
Water Balance.....	18
Monitoring water quality.....	18
Use (Household/Industry/Agricultural).....	18
Supply/Treatment/Discharge.....	18
Waste-water treatment and recycle/reuse.....	19
Prices and tariffs.....	19
Critical situations related to water resources (Soil conservation/Water shortages-Droughts/Water pollution/Water savings).....	20
6. Conclusions and suggestions for the European Commission to support a common framework on the IWRM at Mediterranean Basin level.....	21
Matching recommendations with goals and targets for a sustainable development: The 2030 Agenda.....	22
References.....	24
Annex 1: Stakeholders survey.....	26
Annex 2: IWRM – In force regulatory framework.....	27

## **Executive summary**

The present document concerns the harmonization of the Integrated Water Resources Management at Mediterranean Basin scale. Since water is essential to every aspect of life, its management implies remarkable consequences on key issues from health to human rights, the environment to the sustainable economic development, the social balances to the achievement of peace in water-related conflicts. Even if trans-boundary water resources were not a specific topic of the project from which these Guidelines were developed, the document also takes into consideration the importance of cooperation and common administrative structures where water resources have to be shared among different Countries.

Given the fact that the management of water resources is a key priority for most of the Mediterranean Countries and that most of the water problems are due to the mismanagement of the water resources and to the incoherency among different policies impacting on water, these Guidelines on the Integrated Water Resources Management aims to enhance an integrated water cycle management approach at Mediterranean Basin level for managing the related cross-sector issues through the enforcement of multi-stakeholder partnerships (public and private actors).

Moreover, preparing for climate change is a major challenge for water management. In the years to come, climate change will increase the likeness of flooding, droughts and other consequences throughout the water cycle: this is what all citizens and decision-makers have to learn how to prevent.

The present Guidelines present recommendations gathered throughout the period of implementation of the Water-DROP II-B/4.3/0617 project. The project was financed by means of the European Neighbourhood and Partnership Instrument for the 2007-2013 period, which aims at reinforcing cooperation between the European Union and partner Countries regions placed along the shores of the Mediterranean Sea. This document constitutes an output of the project itself. Throughout its 24 months of implementation, the Water-DROP project has addressed topics ranging from the use of an integrated approach Decision Support System-Geographic Information System for the water cycle management to the implementation of pilot actions concerning water quality monitoring, water treatment, water governance, cost-benefit analysis and elaboration of normative proposals in the field of water resources.

These Guidelines address concrete recommendations for strengthening cooperation and synergies among policies, multilevel stakeholders and instruments in the field of water resources in order to support the harmonization of the law in force within the Mediterranean Basin.

## 1. Background details: The ENPI Water-DROP II-B/4.3/0617 project

### The project

The management of water resources is a key priority for most of the Mediterranean Countries and most of the water problems are due to the mismanagement of the water resources and to the incoherency among different policies impacting on water. According to these assumptions, the Water-DROP (Water Development Resources Opportunity Policies for the water management in semi-arid areas) project aims to develop an **Integrated Water Resources Management (IWRM)** approach at the Mediterranean Basin level for managing the related cross-sector issues through the enforcement of multi-stakeholder partnerships (public and private actors).

The Water-DROP project was financed by means of the European Neighbourhood and Partnership Instrument (ENPI) for the 2007-2013 period, which aims at reinforcing cooperation between the European Union (EU) and partner Countries regions placed along the shores of the Mediterranean Sea.

The Water-DROP project has been designed on the consideration that the main impacts to be produced concern a technical-methodological aspect, an implementation and capacity building aspect, and a normative aspect. Relating to the technical-methodological aspect, the project has developed an **integrated approach DSS-GIS** (Decision Support System-Geographical Information System) **for the water cycle management**; the capacity building on implementation of the new approach and tool has been attained mainly by realizing 5 **Pilot actions** (monitoring marine and fresh water, water treatment, water governance, cost-benefit analysis) in **4 Target Countries (Lebanon, Palestine, Jordan and Italy)**. Finally the project has dealt with the normative aspect by elaborating, on the basis of the new tools, approaches and experiences, **sets of normative proposals on water management**, leading to the progressive harmonization of the legislation at the Mediterranean level.

Though the project, among the Target Group, the national and local authorities responsible for water cycle management, starting from the Partners of this project, have increased their capacity to interact and take coherent and effective policy decisions, supported by an integrated approach and a tested scientific tool as the GIS based DSS. The public and private scientific institutions, the local and national environmental NGOs and the other water management local stakeholders have improved their capacity to reassess their positions, studies and researches on the basis of a new integrated approach and the tested DSS. Indeed 100 experts have been directly trained on the data collection and elaboration coherently to the new approach and use of the DSS, while the responsible authorities have had the opportunity to test the new approach through the implementation of the 5 Pilot actions. Moreover a set of strategic indications on the local water management have been made directly applicable by local authorities. In general all target groups mentioned have had direct access to a database on water management for each of the Target Countries, a GIS based DSS and the relative training tool kit. Finally the Country specific normative improvement has been proposed in each Country with the aim of easing the application of the new integrated approach for the responsible authorities.

As first, among the Final Beneficiaries, the communities of the target areas of the pilot actions (around 450.00 people) have directly had benefits from a better IWRM (reused water in Palestinian Territories, economically improved management of the Italian “Torre Flavia” area, more efficient water use in 3 Jordan communities of Balqa Governorate and reduction of water pollution risk in target Lebanese rivers and sea). A part that, all the communities of the 4 Target Countries whose livelihood depend directly on freshwater or marine water resources (around 3.000.000 people) have taken advantage of the development of an improved common framework for IWRM. Thanks to a better IWRM, those communities have borne a lower risk of water pollution and have had benefits from the increase ratio of actual water available per capita in front of the per-capita water withdrawal. In order to amplify the results of the project at the community level, 1800 students and 36 teachers have been the final beneficiaries of the action thanks to the awareness raising events which have involved 18 schools, so that they could spread the overall awareness on sustainable water uses among their communities.

### **The road map: methodologies and outputs for supporting the IWRM approach**

In particular, the activities related to the work package n°6 of the Water-DROP project have been entirely dedicated to supporting the enhancement of an IWRM approach at the Mediterranean Basin level:

- 6.1 – Setting up 4 Normative Task Force for the analysis of the regulatory context and elaboration of normative proposals;
- 6.2 – Setting up a Mediterranean Task Force for the water management normative harmonization;
- 6.3 – Development of IWRM Guidelines to support the implementation of water norms at the Mediterranean level;
- 6.4 – Stakeholders survey on the needs and constraints for the IWRM implementation.

A **Normative Task Force (NTF)** has been set up in each Target Country (Italy, Jordan, Lebanon, Palestinian Territories) for analysing the specific normative constraints and deficiencies for an effective water management. NTF is formed by local and national water management public bodies and stakeholders. NTF adopts an integrated strategic approach aiming at involving the relevant stakeholders in the normative proposal formulation. The normative analysis (SWOT methodology) starts from official norms, but it takes into consideration the actual interrelations between institutions and civil society; on these basis, each NTF has approved a normative proposal.

The **Mediterranean Task Force (MTF)** has focused on the normative needs for the IWRM implementation at a basin level. The MTF is functional to the realization of IWRM normative Guidelines which take into consideration also the water over-exploitation and pollution issues, which more and more require national norms to adapt to a common framework according also to the customary and treaty international law on the issue.

## 2. The semi-arid areas within the context of the European legislation

The water is life. It maintains ecosystems and regulates our climate, but it is a limited resource. Fresh water which is directly accessible to human consumption is less than 1% of the world's water supply.

In the EU, water is coming under increasing pressures from the continuous growth in demand for sufficient quantities of good-quality water for a whole range of uses. An adequate supply of good quality water resources is a prerequisite of social and economic progress. It is necessary, then, deal with efforts on the two following issues: learn to save water and operate more efficiently in the management of available water resources.

While Europe is by large considered as having adequate water resources, water scarcity and drought is an increasingly frequent and widespread phenomenon in the EU. The long term imbalance resulting from water demand exceeding available water resources is no longer uncommon.

For **drought** means a temporary reduction in water availability to example in the absence of rain for a long period. For **water scarcity** means a situation where the demand for water exceeds the level of sustainable use. This is what all citizens and decision-makers have to learn how to prevent in the upcoming years.

In greater detail, water scarcity is an increasingly frequent and worrying phenomenon that affects over 10% of the European population and almost 20% of its territory.

Since 1980, the number of droughts in Europe has increased, and they have become more severe, costing an estimated € 100 billion over the past 30 years. One of the worst droughts occurred in 2003, when one-third of EU territory and over 100 million people were affected. Between 1976 and 2006, the number of people and areas hit by drought rose by almost 20%, and the yearly average cost has quadrupled.

Demand for water continues to rise across Europe, putting a strain on our resources. It is estimated that some 20-40% of Europe's available water is being wasted (leakages in the supply system, no water saving technologies implemented, water overexploitation for irrigation purposes, dripping taps, etc.). In a 'business as usual' scenario, water consumption by the public, industry and agriculture would increase by 16% by 2030.

In 2007 the European Commission called for common action to address the challenge of water scarcity and droughts in the EU. It highlighted the fact that ineffective water pricing policies have contributed to the mismanagement of water resources in many areas. In its recommendations the Commission underlined the need for full implementation of the Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy) and better pricing policies that incorporate the "user pays principle", which will encourage efficient water use and end needless losses.

**Climate change** will add to the problems of water scarcity and droughts. **Changes in European climate and rain conditions lead EU Countries more and more similar to Countries in the southern part of the Mediterranean Basin.**

The Mediterranean basin is particularly complex in terms of geopolitics, while presenting at the same time a clear potential for cooperation in several sectors responding to the main challenges of the area. More precisely, there is a strong need for strengthening cooperation and synergies among policies, multilevel actors, instruments and funds, in order to make

them more efficient and increase their impacts. In a nutshell, there is a clear need to foster multilevel governance in the Mediterranean area and the water sector is one of the most significant priorities.

It is necessary that Europe recognizes the value of one of its most valuable assets, and yet lacking. The competition for water resources poses a growing risk for the economy, communities and ecosystems on which they depend. Preparing for climate change is a major challenge for water management in the European Union. In the years to come, climate change will increase the likeness of flooding, droughts and other consequences throughout the water cycle: find concrete solutions to safeguard the water resources is therefore of vital importance.

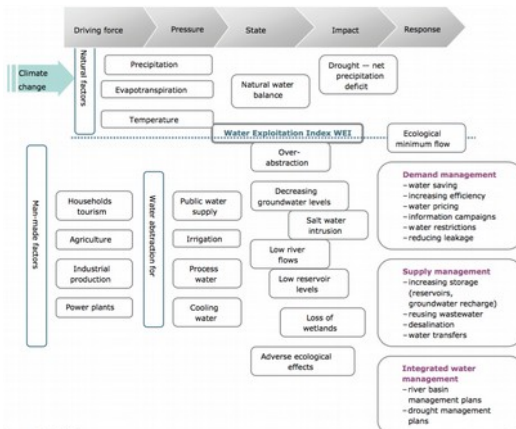


Fig. 1: The DPSIR (Driver- Pressure-State-Impact-Response) framework with respect to water resource management (EEA, 2009)

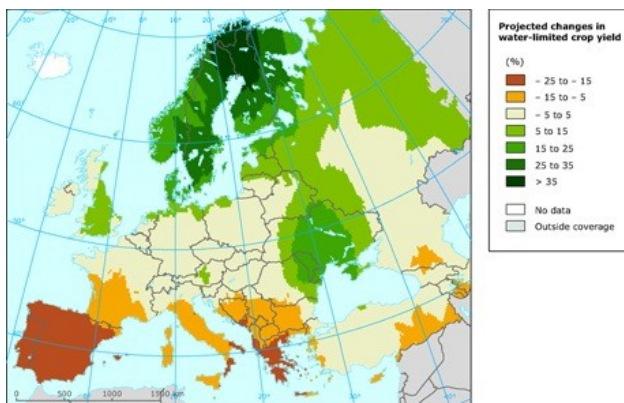


Fig. 2: Mean relative changes in water-limited crop yield simulated by the ClimateCrop model for the 2050s compared with 1961-1990 for 12 different climate models projections under the A1B emission scenario (<http://www.eea.europa.eu/data-and-maps/figures/projected-changes-in-water-limited>)

It would be desirable that all the actions and measures that have to be undertaken in order to mitigate the effects of water scarcity and droughts are in compliance with the regulatory requirements of the main European Directives in the field of water resources. In particular, the **Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy**, seeks to protect and improve the quality of water. The Water Framework Directive establishes an innovative approach for water management based on river basins, the natural geographical and hydrological units, and sets specific deadlines for Member States to achieve ambitious environmental objectives for aquatic ecosystems. The directive addresses inland surface waters, transitional waters, coastal waters and groundwater. It establishes clear rules to halt deterioration in the status of EU water bodies and achieve 'good status' for Europe's rivers, lakes and groundwater by 2015. In greater detail, this includes:

- Protecting all forms of water (inland water, surface water, transitional water, coastal water and groundwater);
- Restoring the ecosystems in and around these bodies of water;
- Reducing pollution in water bodies;
- Guaranteeing sustainable water usage by individuals and businesses.

The Directive places the following clear responsibilities on national authorities:

- To identify the individual river basins on their territory - that is, the surrounding land areas that drain into particular river systems;
- To designate competent authorities to manage these basins in line with the EU rules;
- To analyze the features of each river basin, including the impact of human activity and an economic assessment of water use;
- To monitor the status of the water in each basin;
- To register protected areas, such as those used for drinking water, which require special attention;
- To produce and implement 'river-basin management plans' to prevent deterioration of surface water, protect and enhance groundwater and preserve protected areas;
- To ensure the cost of water services is recovered so that the resources are used efficiently and polluters pay;
- To provide public information and consultation on their river-basin management plans.

Over the years the European Commission have involved national experts and stakeholders in drawing up and implementing remarkable regulatory instruments on water resources (e.g., Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy, Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks). In the upcoming years, one of the major challenges of the EU will be the completion of its overall policy framework on water resources by laying the foundations for drafting a regulatory instrument on water scarcity and drought that will be able to take into account the specific needs and constraints of the Mediterranean Countries.

### 3. The stakeholders survey: Needs and constraints for the IWRM implementation

As coordinator of the work package n°6 of the ENPI Water-DROP project, the Tuscany Region subjected to analysis **4 Target Countries (Italy, Jordan, Lebanon, Palestinian Territories)** with the aim **to analyse the specific needs and normative constraints and deficiencies for the implementation of the IWRM within the Mediterranean Basin.**

A survey on the needs and constraints for the IWRM implementation has been spread among the main significant stakeholders (e.g. local authorities, environmental agencies, NGOs, citizens) of the 4 Target Countries. The **stakeholders survey** (Annex 1) was made up by a first part of open questions and a second part of multiple choice questions regarding the main significant issues related to the management of water resources.

The interviews facilitates a **multi-stakeholder regional water partnership** acting as a platform for interaction and realization of the NTF and MTF analyses and proposals. The survey represents the **first step towards the revision of the legislation and elaboration of proposals in the field of water resources.**

The stakeholders survey received the following feedback:

- Italy: 8% (396 surveys sent);
- Jordan: 95% (110 surveys sent);
- Lebanon: 60% (Municipality of Hermel, 100 surveys sent) and 33% (National Council of Scientific Research, 58 surveys sent);
- Palestinian Territories: 75% (8 surveys sent).

The results obtained from the survey (Annex 1) give a snapshot of the governance and management of water resources within the Mediterranean Basin. Heterogeneous results were obtained among the Target Countries mainly due to differences in the composition of the policy organizations: these results represent a good basis to elaborate proposals for the harmonization of the regulatory acts on water resources at Mediterranean level.

In greater detail, the following needs and constraints have been detected for each one of the Target Countries subjected to analysis:

#### Italy

- Good awareness of responsibilities and roles in the sector of water resources;
- Good awareness on in-force policies/plans/strategies/measures for saving and protecting water resources;
- Lack of awareness on binding measures adopted during period of water shortage and occurrence of droughts;
- Need to decrease fragmentation in roles/responsibilities and regulatory instruments (e.g., plans) in order to optimize the planning and management of water resources;
- Need to integrate water policies with other sector policies (e.g., energy, agriculture);
- Need to increase the investments for water saving (e.g., reduction of water leakages in water supply networks);



- Need to increase the implementation of methodologies/practices to spread knowledge/information/awareness on water cycle management and water scarcity and droughts.

### **Jordan**

- Good awareness on in-force strategies/measures for saving and protecting water resources and on water shortage and occurrence of droughts;
- The role of NGOs for improving the governance and management of water resources is recognized;
- 100% of the interviewees strongly confirm the negative impact of the Syrian refugees.

### **Lebanon**

- The survey has been spread among the most significant stakeholders and key-actors of the water resources sector by the Municipality of Hermel and the National Council of Scientific Research;
- Water deficiency is a tangible environmental issues in Lebanon. The good awareness about water scarcity is mainly ascribed to: irregular rainfall cycle, extensive deforestation, pollution of the water bodies, climate change;
- Lack in implementation of strategies/measures to save and protect water resources;
- Need of investments in infrastructures for optimizing the resource allocation (e.g., operate the existing dams currently not in use for the lack of previous environmental assessments, build-up waste water treatment plants);
- Need to encourage initiatives (e.g., rainwater harvesting, reuse of treated wastewater, pollution prevention and control) to save and protect water resources;
- Need to renew the water price in order to facilitate the access to water;
- Need to increase the public awareness and the involvement of stakeholders;
- The presence of refugees is leading to an increase in water demand, pollution and uncontrolled dumping;
- Trans-boundary water resources are not well managed causing frictions with neighbouring Countries;
- Limited role of the NGOs.

### **Palestinian Territories**

- The good awareness on water scarcity is mainly ascribed to Israeli occupation;
- The implementation of an IWRM depends on Israeli approval and permit. Israeli restrict the access to water and limit the abstraction to some areas so creating a huge gap between demand and supply and social conflicts;
- Need to encourage initiatives in the field of the IWRM at national level to protect water resources;
- Need to assign clear responsibilities and roles;
- Need to increase national and sector-based water quota (average water consumption: 20÷70 litres/day);

- Need to identify sensitive areas;
- Need to restrict random drilling;
- Insufficiency of national monitoring programs (as compulsory by Directive 2000/60/EC), which have been recently stopped;
- Not in all cases binding measures for water efficiency during periods of water shortage or in areas affected by water scarcity have been established;
- Not all of the most relevant economic sectors of the Country are equipped with programs/strategies for decreasing the consumption of water resources;
- Insufficient involvement of environmental associations and NGOs in the governance of water resources due to the lack of their legal accountability;
- Knowledge, information and awareness on water cycle management and water scarcity/droughts are modestly spread in the Country (scattered efforts which do not reflect the daily needs).

The instrument which was adopted within the Water-DROP project has been affected by significant complexities related to the difficulty to remotely collect the needs and constraints in the field of water resources among the main significant stakeholders. These difficulties could be overcome by means of computer-assisted personal interviewing techniques. In spite of this, the stakeholders survey has represented the fundamental baseline to identify and develop the main urgent issues related to the IWRM.

#### 4. The analysis of the in-force regulatory context: Proposals of normative improvements on water management for the Target Countries

The law in force in the field of water resources has been collected and analysed for each Target Country in order to build up the current regulatory framework (Annex 2). A **set of proposals on normative improvements on water management was elaborated** by each NTF with the coordination of Tuscany Region, with the aim to overcome the main significant constraints and deficiencies for the implementation of the IWRM and to prepare the background for the progressive harmonization of the legislation at Mediterranean Basin level.

##### Italy

The main law is the **Legislative Decree 152/2006** which receipts European Directives and mixes them with Italian peculiarity to organize the IWRM in the whole Country. This regulatory act provides for several planning instruments, both national (form and business organization) and local (river basin planning), such as competent authorities regarding prices, constraints and opportunities.

The regulatory framework appears to be complete, with a special focus on sewage systems, water waste treatments, water quality, protected areas and environmental damages.

The major **constraints** and **challenges** concerns the following issues:

- The climate changes are forcing to face emergencies such as droughts and water scarcity and changes in the rain falls;
- The water quality is decreasing, surfaces water and groundwater are affected by pollutions and sea intrusion due to increasing human pressures and consumptions;
- There are too many institutions producing acts and laws in water sector, leading to difficulties in planning and governance;
- By means of the stakeholders survey, a distance has been detected between society that consider water as a common good and public/private companies that consider water as a business.

##### Jordan

Jordan is one of the fourth driest countries in the world. The territorial context is characterized by a considerable **water scarcity** and, as a consequence, by significant **limits to the available water supply**: rainfall ranges from 30 to 600 mm/year (more than 85% is desert with less than 100 mm/year and only 4% of the area receive more than 300 mm/year) and 92.5% of the water is lost by evaporation.

The water scarcity in Jordan poses a serious challenge that will affect all sectors if not addressed with serious efforts. As reported in the **Jordan's Water Strategy 2008-2022**: "Water situation forms a strategic challenge that cannot be ignored. We have to balance between drinking water needs and industrial and irrigation water requirements. Drinking water remains the most essential and the highest priority issue".

The NTF highlighted that most of the water problems are due to the **mismangement of the water resources**, which results to be mainly related to the following issues:

- The water losses due to leakages and illegal uses;
- The low accessibility to water for irrigation purposes;
- The low water use efficiency;
- The groundwater overexploitation: groundwater is being exploited at about twice its recharge rate and there are hundreds of illegal wells;
- The spring Depletion & Contamination;
- The low access to clean water and the lack of sanitation;
- The lack of integrity in the management of water sector.

More pressure will be put in the upcoming future on Jordanian water resources from changes in population, household formation and lifestyles. The **normative improvements** should take into consideration strong challenges on water demand to be faced:

- More focus on strategies for non-conventional water resources (e.g., enhancement of recycle/reuse of treated waste-water in irrigation and landscaping, rainwater harvesting, water supply from desalination);
- Increase water use effectiveness and its allocation among sectors;
- More focus to water demand and IWRM practices;
- Implementation of fair, affordable and cost-reflective water charges for a sustainable use of water resources and a sustainable cost-recovery mechanism for the IWRM (e.g., appropriate water tariffs and incentives will be introduced in order to promote water efficiency in irrigation and higher economic returns for irrigated agricultural products);
- Carry on the actions by the Ministry of Water and Irrigation to control the water illegally extracted.

Efficient water use will become a common practice when a strong consolidated water resources regulatory organization is in place to support compliance with the legal structure and there is a tariff schedule based on the true value of water. Stronger enforcement of laws and regulations can make a major contribution to relieving water shortages today.

## **Lebanon**

The legal and institutional framework in the field of water sector appears to be quite complete in Lebanon (Annex 2), except for the **lack of laws in force on water shortages/droughts and water savings**. By taking into account that about 50% of the average yearly precipitation (8,600 Mm<sup>3</sup>) is lost through evapotranspiration, it could be suitable to encourage the enacting of laws on the management of water shortages/droughts and the enhancement of water savings.

**Law 221/2000** on the organization of water sector has established the need for the implementation of institutional changes in the sector itself in order to overcome fragmentations in water governance and management.

The Ministry of Energy and Water is in charge of policy making, national planning and water resource management, while the 4 regional Water Establishments are in charge of managing drinking water, waste-water and irrigation and ensure service provision (design, implement, operate and maintain potable and irrigation distribution projects based on national master plan and resources allocated by the Ministry of Energy and Water; collect,

treat and dispose of waste-water based on treatment and outfall sites approved by the Ministry of Energy and Water; propose water supply, irrigation and waste-water tariffs that can achieve cost recovery and reasonable profits, aiming at encouraging private sector participation in the establishments' operations; monitor water quality for distributed water supply and irrigation).

The main **implementation deficiencies** of Law 221/2000 are related to: administrative and financial autonomy of Water Establishments (more focus on irrigation and waste-water responsibilities in addition to current water supply activities; more suitable organization for technical functions like as operation and maintenance; improvements to support functions in strategic planning and business planning); the legal text to organize the work of the Ministry of Energy and Water (enhancement of its water governance role, with main focus on policy making, planning and regulatory roles); the availability of funds and technical staff (needs for additional staff and training of existing personnel); performance monitoring of Water Establishments (need for developing the process for the performance monitoring and evaluation of Water Establishments, including the monitoring body, performance indicators and targets, and tools and procedures).

As regards the **private sector participation**, the main significant shortcomings that need to be addressed are the following:

- Lebanon still lags behind a number of countries in the Middle-East and North Africa region who have already an experience in private sector participation;
- The legal framework governing public-private partnership activities is not yet ready;
- While private sector participation is likely to be one of the main enablers of improvement, it should be supported by achieving a holistic reform and a sound enabling environment;
- The participation of the private sector is seen as an enabler to incorporate know-how and fresh capital;
- Given inefficiency and low tariff collection, management contracts would be a starting point for private sector participation in the downstream sub-sector. It would prepare the sector for more advanced forms of private sector participation;
- Production/Upstream is suitable for more advanced private sector participation schemes.

The Lebanese NTF highlighted the following **weaknesses and limitations of current legal and regulatory set up and weaknesses in the institutional performance**:

- Coordination between different bodies is inadequate and needs to be redefined by enacting new laws for establishing an efficient regulatory framework;
- Need for developing the legal requirements to support strategic priorities in the water sector;
- Ensuring normal access to potable water and sanitation including requirements for a proper implementation of operational and quality standards;
- A number of laws are no longer in conformity with environmental standards and need to be modified;
- The Water Code currently under development needs to be finalized and implemented;
- Incomplete implementation of Law 221/2000 and its amendments, and the lack of required bylaws to finalize the implementation of the water sector reform in

view to strengthen the capacities of the management and to provide better performance to the end users;

- Need of legal framework and guidelines for the waste-water treatments plant management. Regulations are needed with respect to sampling methods, sampling locations and frequency of analysis for treated water;
- The need to modernize irrigation laws, thus abolishing the Ottoman law of 1913 in a view to facilitate and organize the use of irrigation water, mainly through the creation of Water Users Associations;
- Setting of a transparent tariff structures;
- The need to develop required legislation to avoid delays in private sector participation in the water sector, mainly to allow for BOTs in large capital projects;
- The Ministry of Energy and Water needs to be involved in the planning of loans-financed waste-water investment, which is undertaken by the Council of Development and Reconstruction;
- The lack of institutional capacity of the regional Water Establishments prevents operational efficiency, adequate planning and prioritization of the investments;
- The new sector law does not go far enough to grant these authorities full autonomy;
- Major reforms are still required to make the sector more efficient and self sustaining (i.e. viable tariff and financial scheme);
- The regional Water Establishments remain understaffed and do not have the appropriate resources to operate at an acceptable level;
- The regional Water Establishments are not financially sustainable in the long term, mainly given the fact that water and sanitation tariffs at this moment do not cover the costs of operation and maintenance.

### **Palestinian Territories**

In Palestinian Territories the process of definition and implementation of a comprehensive program of institutional and legislative **reform in the water sector** is currently underway. The goal of this reform is to establish and activate an effective water governance system and improve the water management mechanisms. Among its objectives: to establish a clear framework of roles/responsibilities/tasks in the water sector; to improve water supply and sanitation strategies/policies/investment programs/project designs; to implement projects for accelerating infrastructure development; to accelerate equitable access to a quality service while providing improved efficiency and cost-recovery of effectively regulated water operators; to build up the institutional knowledge/policies/monitoring and enforcement capacities as part of an effort to achieve a more sustainable water resources management strategy; to improve water demand management and public health awareness in line with the development of water conservation/ environmental/public health policies.

The **Water Law 14/2014** represents a key step of the above mentioned process, which will require additional coordinated and concerted efforts to revise and adapt strategies and policies and to develop the required capacities to allow all sector stakeholders to fulfill their mandates.

The Water Law establishes **mandates and responsibilities of key sector institutions** including the Palestinian Water Authority, the Water Sector Regulatory Council as well as the National Water Company, Regional Water Utilities and the Water Users Associations that still need to be established. Establishing or redeploying these institutions to fulfil their assigned mandates requires a **transition process to address administrative obstacles, public concerns and institutional capacities**. This process will take several years and cannot be implemented for all institutions at the same time.

The Water Law further incorporated **key principles** that are now internationally acknowledged as appropriate ingredients for a modern water sector reform process like: separation of service delivery; policy formulation and regulation to achieve higher efficiency and transparency; the right to water; a legislative framework to treat water as an economic good and manage it in an integrated way.

**Strategic planning and communication** still needs to be further improved, to fully establish the new institutional relationships and implement the emerging governance system effectively. The **Palestinian Water Authority** is faced an ambitious reform plan that requires far reaching changes in its own institutional set-up. At the same time the Authority will have to lead the implementation of the reform with limited resources and in an **uncertain political environment** which contributes to reduce its power of law enforcement.

The newly established **Water Sector Regulatory Council** is still in the process of establishing all required strategies, tools and capacities to fulfil its functions and effectively monitor the performance of service providers.

The West Bank Water Department that is supposed to be transformed into the **National Water Company** faces several institutional weaknesses and capacity gaps. It is considered important that these challenges are overcome before the National Water Company is established, to assure it in a position to carry out its tasks and functions effectively.

In Palestine **more than 300 service providers supply water and manage waste-water, where the vast majority face significant problems resulting from weak institutional capacity, insufficient water availability combined with poor infrastructure and high water losses, and insufficient revenue generation**. As a result services are not meeting the needs of the citizens, leading to a lack in their willingness to pay water bills, which further affects the sustainability of service delivery.

Moreover, most municipal **service providers** have been operating under the law on local government, which considers water service as a responsibility of local government. In consequence **several politically sensitive changes are still required** before service providers will be effectively licensed by the Water Sector Regulatory Council as reflected within provisions of the 2014 Water Law.

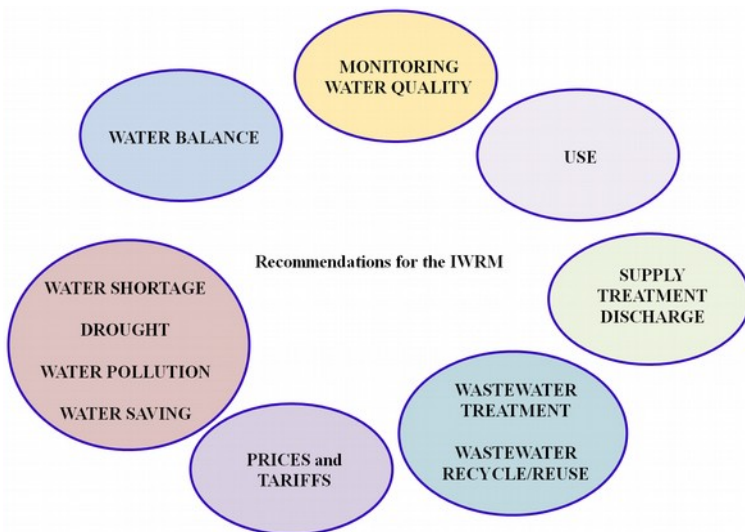
The water sector reform process is going to be developed in a participatory process with national and international stakeholders. By taking into account that the main constraint related to water resources in Palestine concerns the troublesome political balance which leads to distortion in all aspects of the water sector, especially as concerns the recognition of water rights, many efforts shall be done in order to complete this change process.

## 5. Towards an integrated approach within the Mediterranean basin: Recommendations for the water management normative harmonization

On the basis of the results of the stakeholders survey and the collected proposals of normative improvements, the MTF has elaborated concrete recommendations for the IWRM implementation at Mediterranean Basin scale.

The following main issues have been identified with regard to the IWRM:

- Water balance;
- Monitoring water quality;
- Use (household/industry/agricultural);
- Supply/Treatment/Discharge;
- Waste-water treatment and recycle/reuse;
- Prices and tariffs;
- Critical situations related to water resources (Soil conservation/Water shortages-Droughts/Water pollution/Water savings).





For each issue, the following recommendations were shared among the Water-DROP partnership:

<b>Issues</b>	<b>Recommendations</b>
<b><i>WATER BALANCE</i></b>	Quantitative protection of water resources
<b><i>MONITORING WATER QUALITY</i></b>	Definition of a well-framed and updated fact-finding framework of the physical system of water resources
	Identification of environmental objectives for water bodies and/or on the basis of water use (e.g., water used for the abstraction of drinking water, bathing water) in terms of physical/chemical/microbiological parameters
	Identification of protected areas where specific measures for pollution prevention and control have to be applied (e.g., nutrient-sensitive areas, plan protection products for sensitive areas, desertification sensitive areas)
	Monitoring programmes/networks for water bodies
	Recovery of costs for water services, including environmental and resource costs
<b><i>USE (household/industry/agricultural)</i></b>	Identification of the potential water usages
	Registration of water abstraction
<b><i>SUPPLY/TREATMENT/DISCHARGE</i></b>	Integrated management of water services (abstraction, storage, treatment and distribution of surface water and groundwater; waste-water collection, treatment and discharge)
	Identification of roles and responsibilities for the integrated management of water services
	Planning instruments for the integrated management of water services (e.g., supply network plan, sewer system plan)
	Emission limit values for discharging in water bodies in terms of physical/chemical/microbiological parameters
<b><i>WASTE-WATER TREATMENT and RECYCLE/REUSE</i></b>	Technical rules for recycling/reusing of treated waste-water
	Incentive mechanisms in case of recycle/reuse of water resources
<b><i>PRICES and TARIFFS</i></b>	Criteria to be used in establishing the prices of water services
	Different prices of water services to be applied to different water uses
<b><i>CRITICAL SITUATIONS RELATED TO WATER RESOURCES (Soil conservation/Water shortages-Droughts/Water pollution/Water savings)</i></b>	Planning instruments to manage water shortage and the occurrence of droughts
	Identification of structural and/or non-structural interventions to be carried out in order to manage water shortage and the occurrence of droughts
	Technical and administrative measures to be applied for enhance water savings

## Water Balance

The **quantitative protection of water resources** contributes to the achievement of the environmental objectives set by the Directive 2000/60/EC. A proper planning of water usages leads to the avoidance of potential adverse impacts and to a sustainable use of water. Specific measures for ensuring the balance of water resources at a river basin-scale should be included in specific plans for the protection of water resources by taking into account supply and demand for water, ecological flows, rates of recharge, water usages, qualitative and quantitative aspects.

## Monitoring water quality

Programmes in order to define, update and check the **qualitative and quantitative status of surface waters and** at every river basin-scale should be elaborated and developed by each Country at Mediterranean scale.

The **environmental objectives** of reference for water resources set by the Directive 2000/60/EC should be integrated in every Countries regulatory framework.

**Protected areas** where specific measures for pollution prevention and control have to be applied (e.g., nutrient-sensitive areas, plan protection products for sensitive areas, desertification sensitive areas) should be identified.

**Monitoring programmes** should be elaborated and developed by each Mediterranean Country in order to define, update and check the qualitative and quantitative status of surface waters and groundwater at every river basin-scale.

In order to achieve the environmental objective set by the Directive 2000/60/EC, the competent authorities should take into account the principle of recovery of the costs of water services, including environmental and resource costs, and in accordance in particular with the **polluter pays principle**.

## Use (Household/Industry/Agricultural)

Every national water policy should strongly contribute to pursuit of the objectives of preserving, protecting and improving the quality of environment and water resources, in **prudent and rationale utilisation of available resources**, and it should be based on the precautionary principle and on the principles that preventive action should be taken, environmental damage should, as priority, be rectified at source and that the polluter should pay. Wastefulness should be minimized and recycle/reuse of water resources should be maximized. The water usages different from that intended for human consumption should be allowed if water resources are available in sufficient amount and if these usage do not affect their quality.

Every Country at Mediterranean Basin level should elaborate a register of **water abstractions** with information regarding their use and flow.

## Supply/Treatment/Discharge

**Water services** should be organized and managed by means of an integrated approach with a well-framed overview on abstraction/storage/treatment/distribution of surface water

and groundwater, waste-water collection, treatment and discharge. The integrated water services have to be managed on the basis of the principles of efficiency, cheapness and with respect to national and community related regulatory acts.

**Roles, responsibilities and tasks** should be clearly identified for the integrated management of water services. The integrated water services should be organized within suitable administrative-bounded area and the competent authorities should organize, entrust and control the management of the integrated water services within the area itself. The competent authorities for the integrated management of water services should identify and update facilities, programmes of intervention, management and organizational models, economic and financial plans by means of specific **planning instruments** (e.g., supply network plan, sewer system plan) in order to reach at least the minimum service level and to satisfy the overall demand of water.

All the **discharges** to receiving water bodies should be in compliance with the emission limit values as set by the Directive 2000/60/EC.

### **Waste-water treatment and recycle/reuse**

Specific categories of **recommended use** with the description of each type of use, such as urban reuse (restricted and non-restricted), agricultural reuse (food crops, non-food crops), aquifer recharge for drinking purposes, landscape irrigation, environmental enhancement, and other non-drinking uses should be included in the regulatory framework of every Mediterranean Country.

Those who use and manage water resources should implement all the necessary measures in order to avoid wastefulness, to reduce consumption and to enhance recycle/reuse even by means of the best available technologies. Every Mediterranean Country should include in its regulatory framework specific **technical rules for reusing household, urban and household waste-water** by taking into account among others the allowable water uses (household, industry, agriculture) and the quality requirements.

The law in force in each Mediterranean Country should provide for a **decrease in water price in case of recycle/reuse of water/waste-water** (e.g., industry production cycles).

### **Prices and tariffs**

**Water prices** should be determined by taking into account the principle of recovery of the investments and operational costs of water services, including environmental and resource costs associated with damage and negative impact on the aquatic environment in accordance in particular with the “polluter pays principle”. The economic analysis should take into account long term forecasts of supply and demand for water in the administrative-bounded area of reference (e.g., estimates of the volumes, prices and costs associated with water services, estimates of relevant investment including forecasts of such investments).

Different water prices should be provided in order to adequately take into account the **contribution of different water uses** (household, industry, agriculture). Benefits should be provided for the priority uses (e.g., household), while increases in water price should be provided among others for secondary house, seasonal facilities and commercial and industry enterprises.

At EU level, one of the key innovations of the Water Framework Directive is its call for water services – such as supplying clean drinking water, irrigation for agriculture, reservoirs for hydro-power and waste-water treatment facilities – to be charged at a price

which fully reflects the services provided. Under the Directive the recovery of costs refers to several elements. The prices users pay for water should cover the operational and maintenance costs of its supply and treatment and the costs invested in infrastructure. The Directive goes further and requires that prices paid by users also cover environmental and resource costs. This is a key step towards implementing the economic principle that polluters and users should pay for the natural resources they use and the damage they create. Environmental costs include damage to ecosystems such as pollution that harms fish and wildlife in rivers. Extracting water for human causes repercussions such as reducing water levels in rivers and lakes and this may harm ecosystems. These costs do not appear on financial balance sheets, but they can be measured.

### **Critical situations related to water resources (Soil conservation/Water shortages-Droughts/Water pollution/Water savings)**

Every Mediterranean Country should provide a specific operational instrument (e.g. emergency plan) for properly managing the periods of **water shortage** and the occurrence of **droughts**.

The specific operational instrument should identify the **structural and non-structural interventions** (e.g., storage and distribution facilities for water resources), **measures** (e.g., procedures to limit water abstractions, procedures to change the value of the ecological flow) and **actions** for properly allocating water resources during the periods of water shortage and the occurrence of droughts.

Every Mediterranean Country should provide for adopting **policies/measures/strategies in order to rationalise water consumption and avoid wastefulness of water resources** (e.g., to improve the maintenance of supply networks in order to reduce water leakages, to build up separate sewer systems at least in new buildings, to build up separate supply networks in order to enhance recycle/reuse of water/waste-water, to adopt high-efficiency irrigation systems, to install counters in order to control water consumption in household as well in industry and agriculture).

## **6. Conclusions and suggestions for the European Commission to support a common framework on the IWRM at Mediterranean Basin level**

The Water-DROP project has been an important opportunity to demonstrate the key role of territorial cooperation. A gradual variable scheme concerning the geography for emerging strategies based on the specific potential for cooperation of each sub-basin of the Mediterranean Basin should be a concrete goal for the European Commission.

A step-by-step, gradual and tailored approach concerning the inclusion of the key players from Mediterranean Countries should be adopted by the European Commission in order to have an overview on the specific needs and constraints for the IWRM in these Countries (hydrological, social-economic and ecological pressures on water resources) as food for thought in drawing up the future environmental normative acts.

The above-mentioned approach should take into account and enhance the following main issues:

- To put attention in safeguard and conservation of water is important to settle up measures to save/reuse/conservate water and to face the wrong behaviours (incentive mechanisms in case of recycle/reuse of water resources);
- To fix the right price for water to fit the full costs recovery and to encourage the lower consumption of “good quality water”;
- To settle a “task force” among the official bodies with meta-competences (e.g., engineers, economists, chemicals, biologist) for the management of emergencies in water lack and droughts;
- To establish a correct ratio between different water uses, human use is the priority, and to achieve a good water balance where the water exist;
- To identify protected areas where specific measures for pollution prevention and control have to be applied (e.g., nutrient-sensitive areas, desertification-sensitive areas);
- To enhance the integrated management of water services (abstraction, storage, treatment and distribution of surface waters and groundwater, waste-water collection/treatment/discharge);
- To enhance knowledge, information, awareness on water cycle management and the occurrence of scarcity/droughts in order to make effective emergency measures, to enhance resilience in front of future water crisis and responsible behaviours as concerns water usages.

The results achieved thanks to the implementation of the Water-DROP project highlight the importance of establishing an effective strategic involvement of multi-stakeholder partnerships (including the need for setting up public-private synergies) for their participation in the shaping of national policies and for promoting understanding and acceptance of water management practices.

A balanced poly-centric and multilevel approach concerning bottom-up and top-down suggestions in the framework of participatory governance mechanisms should be at the base of every strategic path related to the water sector.

## Matching recommendations with goals and targets for a sustainable development: The 2030 Agenda

2016 presents an unprecedented opportunity to bring the countries and citizens of the world together to embark on a new path to improve the lives of people everywhere: Countries have adopted [a new sustainable development agenda](#) and [global agreement on climate change](#).

The concrete recommendations gathered during the implementation period of the Water-DROP project find an interesting **opportunity of interaction** with this path toward a sustainable development. The recommendations together with the goals and targets for a sustainable development can represent concrete suggestions for the European Commission to support a common framework on the IWRM at Mediterranean Basin level.

On 1<sup>st</sup> January 2016, the [17 Sustainable Development Goals](#) of the [2030 Agenda for Sustainable Development](#) — adopted by world leaders in September 2015 at an [historic United Nations Summit](#) — officially came into force. Over the next fifteen years, with these new Goals that universally apply to all, Countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

The Sustainable Development Goals build on the success of [the Millennium Development Goals](#), and aim to go further to end all forms of poverty. The new Goals are unique in that they call for action by all countries, poor, rich and middle-income to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and addresses a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection.

While the Sustainable Development Goals are not legally binding, governments are expected to take ownership and establish national frameworks for the achievement of the 17 Goals. Countries have the primary responsibility for follow-up and review of the progress made in implementing the Goals, which will require quality, accessible and timely data collection. Regional follow-up and review will be based on national-level analyses and contribute to follow-up and review at the global level.

At the beginning of 2016, in accordance with Economic and Social Council decision 2015/216 and past practices, the Inter-Agency and Expert Group of the United Nations developed a global indicator framework for the Goals and targets of the 2030 Agenda for Sustainable Development.

The subsequent table summarizes the final list of proposed Sustainable Development Goal indicators. Sustainable Development Goal indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics, in accordance with the Fundamental Principles of Official Statistics (General Assembly resolution 68/261).

<b>Goals and targets (from the 2030 agenda) - Goal 6. Ensure availability and sustainable management of water and sanitation for all</b>	<b>Indicators</b>
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1 Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated waste-water and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of waste-water safely treated
	6.3.2 Proportion of bodies of water with good ambient water quality
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1 Change in water-use efficiency over time
	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	6.5.1 Degree of integrated water resources management implementation (0-100)
	6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1 Change in the extent of water-related ecosystems over time
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, waste-water treatment, recycling and reuse technologies	6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan
6.b Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

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## **Annex 1: Stakeholders survey**



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## **Water DROP Project Survey**

### *Part 1 – General info – Open questions*

- 1. What is your current awareness on water scarcity and the occurrence of droughts in your Country?**

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- 2. Are you aware of the best practices/measures and policies that your Country is implementing in order to save and protect water resources?**

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- 3. Can you indicate the competent authorities (e.g., Ministries, Departments, Basin Authorities, Water Agencies) for the government and management of water resources in your Country?**

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- 4. What are your suggestions for the above mentioned authorities in order to improve the governance and management of water resources?**

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- \_\_\_\_\_
5. What are the further actions that you could implement to save and protect water resources?

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6. What is the role of the NGOs with regard to the water governance in your Country?

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7. What is the impact of social emergencies (e.g., presence of refugees, presence of conflict situations) on the water sector in your Country?

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8. Is your Country sharing water resources with its neighboring Countries? If so, who and how is currently managing these transboundary water resources?

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*Part 2 – Detailed info – Multiple-choice questions*

9. Is your Country implementing an integrated water cycle management approach (supply of water resources and collection/treatment of waste waters) in order to achieve a safe and sustainable supply of quality water for drinking, farming, industry and household use, and for sustaining the health of rivers and wetlands (e.g., presence of integrated water cycle management plans)?

☐ Yes  
☐ No  
☐ Don't know

10. Is there a hierarchy for the use of water resources in your Country (e.g., drinking water as the highest priority issue)?

☐ Yes  
☐ No  
☐ Don't know

11. Are you aware of the per capita water consumption for household use in your Country?

☐ 0-50 Liters/person  
☐ 50-100 Liters/person  
☐ 100-150 Liters/person  
☐ 150-200 Liters/person  
☐ > 200 Liters/person  
☐ Don't know

12. Are the most relevant economic sectors of your Country (industry, energy production, agriculture, tourism, etc.) equipped with programs/strategies for decreasing the



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**consumption of water resources?**

- ☐ Yes
- ☐ No
- ☐ Don't know

**13. Which of the following techniques/practices/measures is your Country implementing in order to reduce water consumption?**

- ☐ Reduction of water leakages in water supply networks
- ☐ Reuse of treated wastewater
- ☐ High-efficiency irrigation systems (e.g., drop-by-drop irrigation)
- ☐ Water recycling in production cycles
- ☐ Rainwater harvesting
- ☐ None of the abovementioned techniques/practices/measures
- ☐ Don't know

**14. Has your Country developed national monitoring programs for assessing the quality status (e.g., monitoring chemical pollution) of water bodies in order to meet the requirements of the Directive 2000/60/EC (Water Framework Directive)?**

- ☐ Yes
- ☐ No
- ☐ Don't know

**15. Has your Country set up mandatory requirements for certain water using products (e.g., litres of water consumed every washing machine and dishwasher cycle, capacity per toilet flushing) before they can be put on the market, as established by the Directive 2009/125/EC (Ecodesign Directive)?**

- ☐ Yes
- ☐ No



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☐ Don't know

**16. Is your Country equipped with drought management systems (e.g. mapping areas of risk, warning system)?**

☐ Yes

☐ No

☐ Don't know

**17. What is the scale for measuring/monitoring droughts and the lack of water resources in your Country?**

☐ Administrative-bounded area (e.g., Region, District, Municipality)

☐ Hydrographic Basin

☐ Hydrographic Sub-Basin

☐ Water body

☐ None of the abovementioned scales

☐ Absence of measuring/monitoring systems

☐ Don't know

**18. Has your Country established binding measures for water efficiency to be adopted during periods of water shortage or in areas affected by water scarcity?**

☐ Yes

☐ No

☐ Don't know

**19. Are the environmental associations, trade associations and labor unions involved in formal decision making processes on water management in your Country?**

☐ Yes



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- ☐ No
- ☐ Don't know

**20. Does your Country receive any assistance in correspondence to the occurrence of droughts from international associations (e.g., FAO, USAID, etc.)?**

- ☐ Yes
- ☐ No
- ☐ Don't know

**21. Is your Country implementing methodologies/practices to spread knowledge/information/awareness on water cycle management and water scarcity and droughts (e.g., guidelines/handbooks where the policies, processes and tools are simply synthesized and described)?**

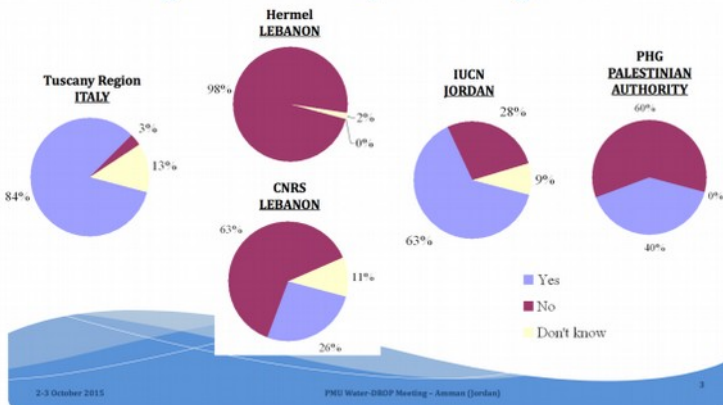
- ☐ Yes
- ☐ No
- ☐ Don't know



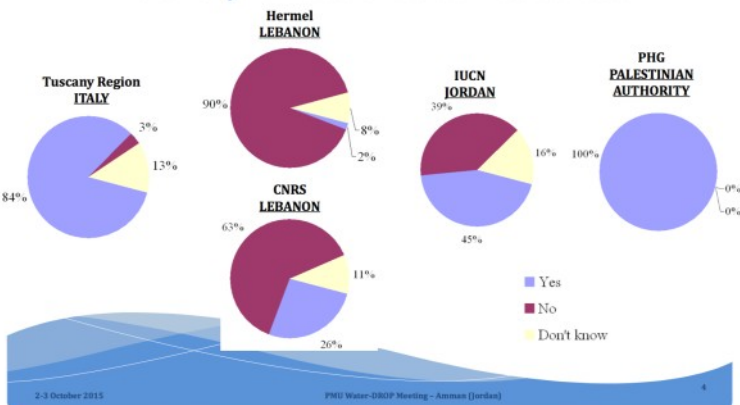
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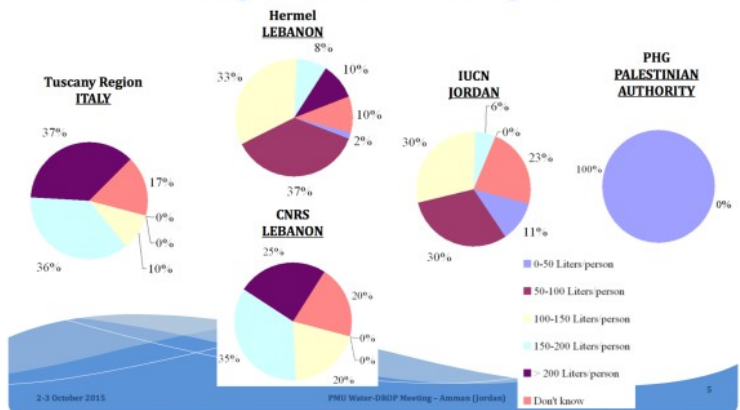
## Integrated water cycle management



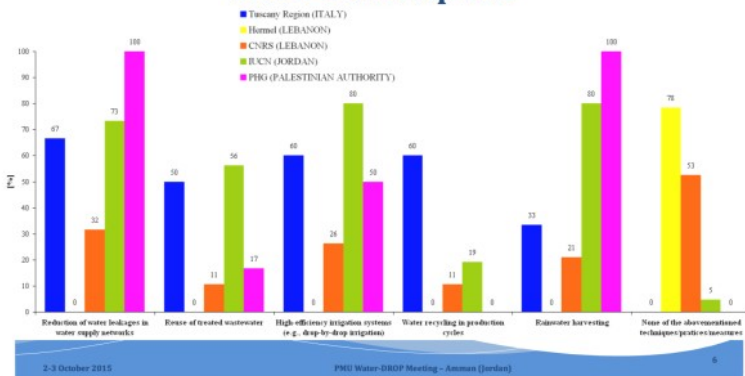
## Hierarchy for use of water resources



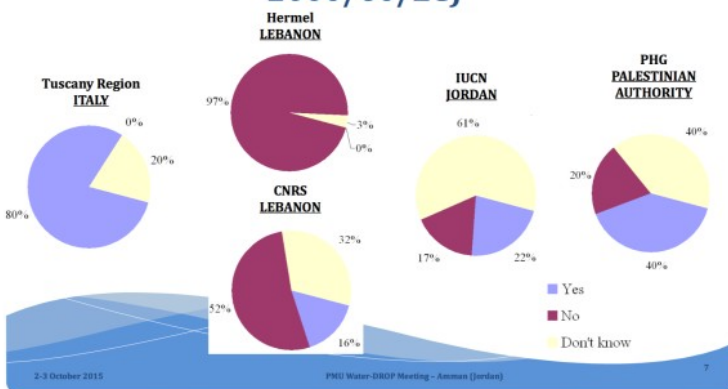
## Per capita water consumption



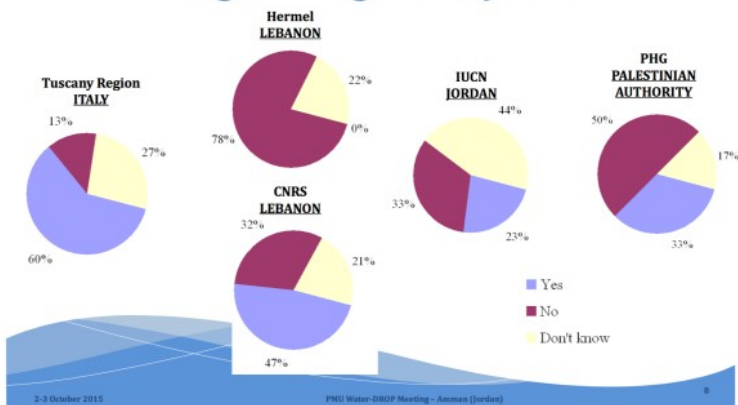
## Techniques/Practices/measures to reduce water consumption



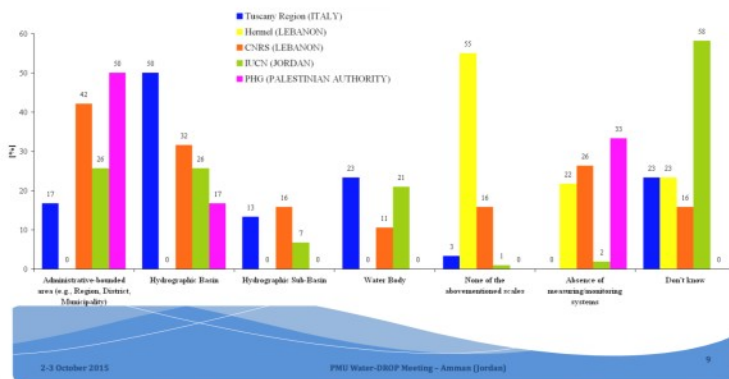
## National monitoring programs (Directive 2000/60/EC)



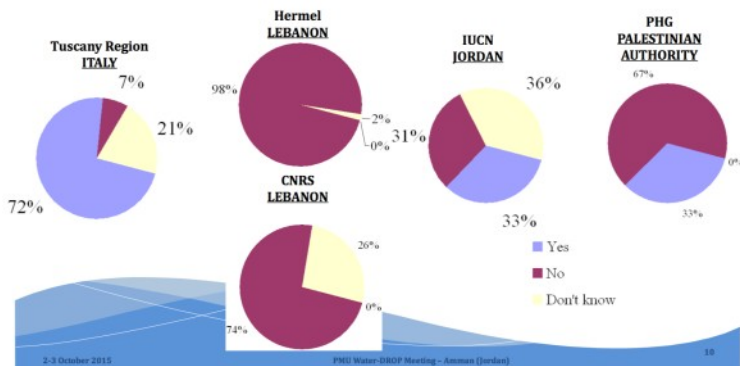
## Drought management systems



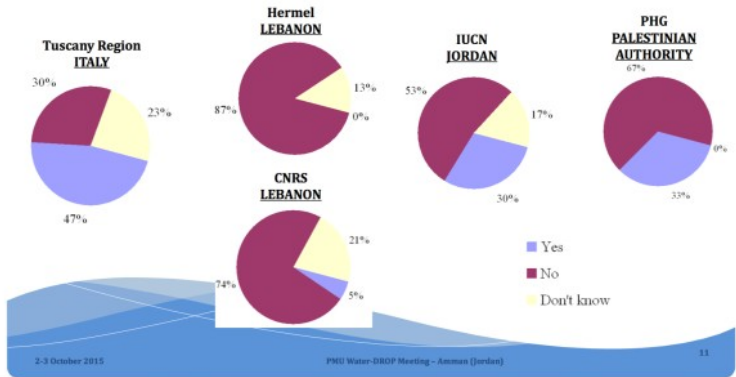
## Scale for measuring/monitoring droughts



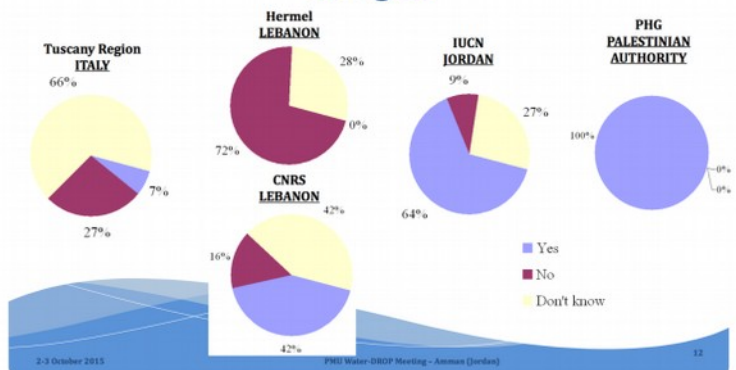
## Binding measures for water efficiency during water shortage



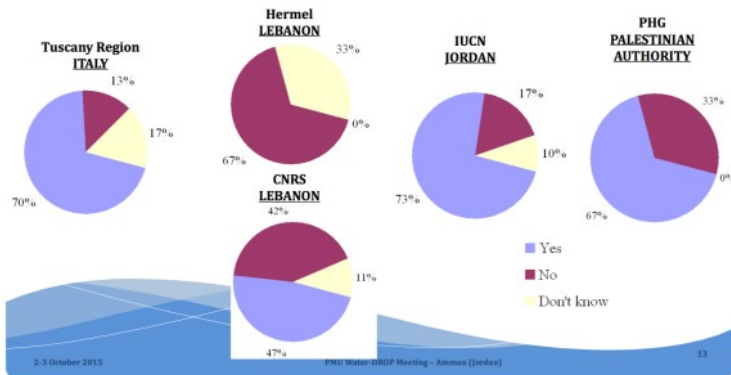
## Involvement of env. ass./trade ass./labor union/NGOs in governance



## Assistance of international ass. During droughts



## Spread knowledge/info/awareness on water resources





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## **Annex 2: IWRM – In force regulatory framework**



Target Country	Governance and Management of Water Resources											
	Water Balance	Monitoring Water Quality	Use			Supply/Treatment/Discharge	Wastewater Treatment and Recycle/Reuse	Tariff	Critical situations related to water resources			
			Household	Industry	Agricultural				Soil conservation	Water shortages/Droughts	Water Pollution	Water Savings
Italy	Legislative Decree 152/2006 [Government]	Legislative Decree 152/2006 [Government]	Law 36/1994 (abrogated by Legislative Decree 152/2006) [Government]			Legislative Decree 152/2006 [Government]	Legislative Decree 152/2006 [Government]	Deliberation 28/2012 [AEGSII]	Law 183/1989 (abrogated by Legislative Decree 152/2006) [Government]	Regional Law 24/2012 [Tuscany Region]	Law 319/1976 (abrogated by Legislative Decree 152/1999) [Government]	Law 36/1994 (abrogated by Legislative Decree 152/2006) [Government]
	Ministerial Decree July 28th, 2004 [Ministry of Environment]	Deliberation 100/2010 [Tuscany Region]	Legislative Decree 152/2006 [Government]				Ministerial Decree 185/2003 [Government]	Deliberation 80/2013 [AEGSII]	Law 36/1994 (abrogated by Legislative Decree 152/2006) [Government]			Legislative Decree 152/2006 [Government]
	Criteria [Arno River Basin Authority]	Deliberation 847/2013 [Tuscany Region]	Regional Law 69/2011 [Tuscany Region]					Deliberation 643/2013 [AEGSII]				Specific standards for water savings in agriculture [Tuscany Region]
			Regulation April 21st, 2015 N°50/R [Tuscany Region]					Deliberation 29/2014 [AEGSII]				
			Regulation April 21st, 2015 N°51/R [Tuscany Region]					Ministerial Decree 39/2015 [Ministry of Environment]				
Jordan	Organisational By-Law 14/2014 [Ministry of Water and Irrigation]	By-Law of drinking water subscription 67/1994	Organisational By-Law 14/2014 [Ministry of Water and Irrigation]			Water Authority Law 18/1988 [Government]	Organisational By-Law 14/2014 [Ministry of Water and Irrigation]	Water Authority Law 18/1988 [Government]	Agriculture Law 44/2002		Environment Protection Law 52/2006 - Art. 8, 9/A, 11/A [Government]	Water Authority Law 18/1988 [Government]
	Water Authority Law 18/1988 [Government]	Wastewater By-Law 66/1994 [Water Authority]	By-Law of drinking water in Jordan Valley 70/1981				Water Authority Law 18/1988 [Government]				Agriculture Law 44/2002	
		By-Law of drinking water in Jordan Valley 70/1981	By-Law of recapture and modify of agricultural units 89/1975				Underground Water By-Law 85/2002 [Government, Ministry of Water and Irrigation, Water Authority]				Pintails Law 16/1960 - Art. 457/1, 457/3, 458	
	Underground Water By-Law 85/2002 [Government, Ministry of Water and Irrigation, Water Authority]	General Health Law 47/2008 - Art. 62/A/1	Water Authority Law 18/1988 [Government]			Wastewater By-Law 66/1994 [Water Authority]	Anti Pollution Regulation 83/2009 issued by Municipality By-Law 14/2007 - Art. 4/B, 4/F	Underground Water By-Law 85/2002 [Government, Ministry of Water and Irrigation, Water Authority]	Environment Protection Law 52/2006 [Government]		General Health Law 47/2008 - Art. 62/D/2	
			By-Law of administrative management for the Jordan Valley [under processing]				Environment Protection Law in Aqaba economic zone 21/2001 - Art. 67/A					
	Jordan Water Strategy 2008-2022 [Government]	Health regulation for drinking water tank issued by industrial Law 16/1953	By-Law of determination of criteria and priorities for allocation of agricultural units in the Jordan Valley [under processing]			By-Law of drinking water in Jordan Valley 70/1981	Environment Protection Law in Aqaba economic zone 21/2001 - Art. 56/E, 66/F				Anti Pollution Regulation 83/2009 issued by Municipality By-Law 14/2007 - Art. 4/F	
			Wastewater By-Law 66/1994 [Water Authority]									
Palestinian Territory	Not exist	Palestinian Environmental Law 7/1999 [Ministry of Environmental Affairs]	Water Law 14/2014 [Palestinian Water Authority]			Palestinian Environmental Law 7/1999 [Ministry of Environmental Affairs]	Palestinian Environmental Law 7/1999 [Ministry of Environmental Affairs]	Under construction	Not exist	Not exist	Not exist	Not exist
		Water Law 14/2014 [Palestinian Water Authority]				Water Law 14/2014 [Palestinian Water Authority]						







For more info please visit: **<http://water-drop.enea.it>**