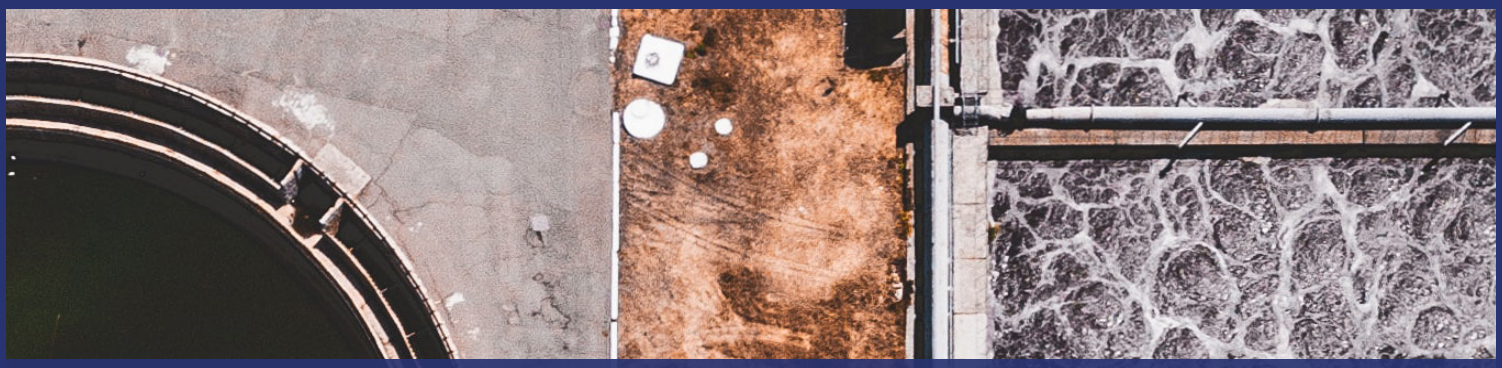

UFM WATER RESPONSE TO COVID-19 AND PUBLIC HEALTH NEXUS

Final Report

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

The UfM Secretariat is co-funded by the EUROPEAN UNION

UFM WATER RESPONSE TO COVID-19 AND PUBLIC HEALTH NEXUS

Final Report

Acknowledgment:

This report has been developed in the framework of the implementation of the UFM water Agenda, WASH Chapter.

The Development of this document was led by Mr Almotaz Abadi, UFM water Managing Director, in close cooperation with Mr Guy Fleuret, Senior International Expert, with the support of IME.

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I - Guidance and Recommendations

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Acronyms List

IFI's: International Finance Institutions

GWP-Med: Global Water Partnership-Med

UfM: Union for Mediterranean

WASH: Water Sanitation Hygiene

WES: Water Environment Support

WHO: World Health Organization

1 - Introduction

WASH is a complex system of networks of different institutions, stakeholders, incentives and dynamics which inter-act to produce a secured water service for the health of the population. WHO, like other international institutions, notes that the weak link in the WASH system is sanitation. This is still the case for the Mediterranean Region, even if a lot of progress has been made in recent years.

Moreover, COVID-19, in the way the medical responses were implemented, such as increased hygiene, put a burden on the production and distribution of water matching the health needs. The pandemic strategically strengthens the link between the water and the health sectors, where the health could be the "forth pillar" of the Nexus (Water, Energy, Food Security). This creates a window opportunity for a UfM Secretariat's post-crisis positioning (focused on a NEXUS Strategy).

This is reinforced by the fact that UfM is a water regional platform that aims to consolidate regional cooperation initiatives in WASH sector, at a medium/long-term. WASH/ UfM Agenda is not an agenda for a critical response at a short-time. The focus on water, sanitation and health emergency interventions, like hygiene (eg hand-washing with soap) fits into the format of rapid critical action plan. In the medium-long term, initiatives which develop innovative water treatment measures (through research and demonstrators, for example), upgrade infrastructures and increase the pipe-line of investment in sanitation, water treatment and reuse are the key elements of this WASH/UfM Agenda, which is focused on a financial agenda. According to many reports and policy papers from international institutions and IFI's, COVID-19 has highlighted the needs to invest in wastewater facilities and adequate sanitation. The outbreak of pandemic is projected to slow down mainly in this sector.

As such giving priority to disposal investments in sanitation and to adequate waste water treatment must be a prerequisite for an effective WASH strategy.

The report will consider two aspects of the problem as it is supposed to arise at the regional level:

-What are the policy recommendations that can make sense? This is the subject of the report 1 on the policy brief.

-How can we identify projects/initiatives that illustrate these elements of good practices and strengthen regional cooperation? This is the subject of the report 2 on an identification process related to emergent labeled projects.

2 - Regional Policy Recommendations related to the COVID-19

The impacts of the COVID-19 reached a larger dimension than the sole emergency sanitary solutions: **they question the viability and resilience of national and sub-regional systems of infrastructures and basic facilities supply**.

Policy-makers in the Mediterranean Region have to face three main challenges, which concerns what is called the" governability" of the WASH system:

- lack of policy coherence,
- insufficient development of broader and innovative financial solutions,
- scarcity of initiatives about a multi-dimensional and inclusive governance.

UfMS, like "policy engineer" will promote regional dialogue and initiate partnership facing these challenges, in two directions:

-promote policy dialogue tools,
-develop a "pro-active" policy influence.

This constitutes an action plan for the UfM Secretariat (confers the Policy Brief).

• **The policy dialogue tools** concern different areas such as the twinning policy, the follow-up of the WASH strategies in the countries, the peer learning (highly recommended by WHO), the continuation and deepening of the financial strategy work.

If we had to choose one or two key work-tracks for the next year, it would be the creation of a follow-up mechanism on WASH measures and the organization of a financial roundtable, with the support of OECD, on financing sanitation and waste water treatment.

• **The policy influence** concern different areas such as a partnership with WHO and OECD, results oriented, the promotion of a policy maker capacity building on WASH, a discussion with the European Commission and the Water Finance Coalition on how can the Financial Institutions (and Donors) address the needs for sanitation, the promotion of innovative strategies, the integration of territory/ local dimension in the Water Agenda.

If we have to choose a few prioritizing actions for the next year, it could be the partnership with OECD and WHO, like priorities, the promotion of a Financing Facility applicable to the ENIP countries, the partnership with some key programs and networks, which implement innovative strategies and investment cases (WES/ GWP-Med, Life) and promote and support pilot territories(Covenant of Mayors Mediterranean, Medcities,...), like "good examples" of multidimensional WASH strategy .

• Beyond considerations specific to the UfM Secretariat's capacity for action and considering the complexity of the WASH system, which has been exacerbated by the pandemic, the main question to the Region is the following: **shall we keep running on the status quo or are we requested to have a WASH strategy which could be integrated to the global governance that seeks for better socio-economic**?

Thinking about this involves thinking an incentive strategy of alignment between the different actors and sectorial strategies, which is the basis of a Nexus framework that could bolster the missing elements to achieve more progress. This will necessitate more efficient WASH management and funding to implement it.

In the Mediterranean Region, in view of the finding shared by international institutions, the main gap is related to policy coherence, efficient push of financial strategy and a more inclusive governance organization. This is shown in the Annex on Country Analysis.

Globally, the WASH strategy is more "crisis-response" oriented than "planning strategy" oriented. There is a fundamental misalignment between crisis responses and the needed long-term outlooks for infrastructure investments to ensure a sustainable WASH system.

Even if the rate of access to basic sanitation is high (more than 90%), the existence of areas of poverty that do not have sanitation services constitutes a significant health risk, increased by the COVID-19, and left many systems under huge pressure due to the concentrated demand on water and WASH services.

Thus, a financing strategy must be considered, alongside with financial mechanisms focused on innovative solutions, with the following objectives: (a) make a more efficient use of existing resources, (b) incite using public funds in a more targeted manner, (c) attract other sources of financing, (d) focus on De-Risking the sector.

Also it is noticeable that the WASH system in the Mediterranean Region is fragmented over many institutions and mandates such as: inland water resources, emission (discharges) of wastewater and tap water (all public health related water quality issues). Adding the scattered and under developed regulatory system leads to widen the challenge.

WASH sectors need a whole government approach rather than a sectorial fragmentation, which could be achieved by following the WHO recommendations with specific fine tuning to the region such as ensuring greater public participation, prioritizing risks for vulnerable groups, and strengthening the capacity to implement change process through a close association with local governments and enhance inter ministerial strategy.

All this involves specific tailor-made recommendations for the Region:

1. Sanitation must be recognized as a multi-sectorial issue that has impact across health, social development, education and economy.

2. Lead institutions need to develop multi-sectorial sanitation policies, that use inter-sectorial coordination mechanisms and planning processes.

3. A focus on sub-national peer-to-peer learning and pilot territories promoting are recommended. More globally, the integration of WASH/sanitation management into mainstream planning for cities and rural areas is the key for success.

4. Identifying funding sources and financing instruments to be mobilised is critical, including domestic public finance and targeted subsidies. Best used of internal revenue remains important.

5. Financial tracking system is recommended for the Mediterranean region to enhance the efficiency of water utilities and ensure their sustainability.

6. Establishing a unique budget line for sanitation is key and allows a wider approach, not exclusively focused on individual investments projects, but also comprehensive strategies, that can follow Financial Institutions and Donors.

7. Capacity development and institutional strengthening are essential to plan, design, finance, build and sustain improved WASH/sanitation systems, including operators, managers and policy makers.

8. Effective integration of sectors addressing sanitation will require increased capacity. The first step is to prepare an agreed sector coordination strategy, that combine agreements of authorities with recommendations to mainstream WASH-related actions.

9. "Future-proofing" the sector necessitates innovative approaches, like using no-conventional wastewater treatment and reuse, and technologies "stabilized" (that supposes financing demonstrators).

10. Information management systems that also tackle quality and smart indicators allow to target investments and public funding. Supporting institutionalization of data collection and monitoring is a condition of integration sanitation with health surveillance.

11. Building a multi-level partnership, that could be initiated to push the WASH strategy. A role for the regional level could be to implement incentives that accelerate the transition in a WASH services-approach towards robust strategies and achieve the SDG's related.

3 - Emergent labeled projects/ initiatives as examples of good policy practices

The global policy approach is not a sufficient condition for implementing a regional strategy. It is also necessary to demonstrate through concrete projects/initiatives that is possible, hence the importance of flagship projects.

The objective will be to discuss and promote results oriented partnerships with various interlocutors focused on projects/ programs, like cities network or EC programs. The discussions aim to identify projects potentially eligible for the UfM label and meeting the defined criteria of eligibility.

Five eligibility criteria are key

- Social sustainability and economic efficiency: The global goal is to check if the project reflects wider benefits and costs effective to WASH and to assess it's viability capacity to meet WASH's needs.

- Soundness: Activities of the project are properly listed; stakeholders and local communities are well involved (if it's relevant).

- Financial viability: The global goal is to ensure that the financial requirement applicable is sustainable.

- Innovative Dimension: The investment business models related to alternative infrastructures in this domain are not really stabilized. Innovative cost-effective approach must be highlighted.

- Replicability: The project identified is either a regional initiative or a project that would be adaptable in other national contexts. Or we know that, in this domain, the investment cases are very strongly depending of the national regulations.

The risk assessment specific to any project must be a key element of the identification process. The methodology is a milestone. It's an"open" approach, which have to be shared with policy makers and stakeholders.

II - Policy Brief

Policy brief on WASH regional strategy

II - Policy Brief

Policy brief on WASH regional strategy

Drafted by Guy Fleuret, International Expert,with the support of IME and Professor Selmin Burak
December 2020

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CAF: Bank of Latin America
EC: European Commission
EIB: European Investment Bank
ENIP countries: European Neighborhood Instrument Partnership Countries
GLAAS: Global Analysis and Assessment of sanitation and Drinking-Water
IFC: International Finance Corporation
IME: Institut Méditerranéen de l'Eau
OECD: Organization for Economic Co-operation and Development
GWP Med: Global Water Partnership Med
PRIMA: Partnership for Research and Innovation in the Med Area
SDGs; Sustainable Development Goals
SWA: Sanitation and Water for All
SWIM program: Sustainable Water Integrated Management program
UfM: Union for Mediterranean
UfMS : Union for Mediterranean Secretariat
UNEP MAP: United Nations Environment Program/ Mediterranean Action Plan
AFD: Agence Française de Développement
ARLEM: Assemblée euro-méditerranéenne
WB: World Bank
WASH: Water Sanitation Hygiene
WES: Water Environment Support
WHO: World Health Organization
WWC: World Water Council

2 - Introduction

The current health crisis shows multiple inter-connected risks and vulnerabilities. This policy brief focuses on sanitation and the weak link in the WASH system; while safe sanitation systems and services are essential for health. WHO has just published a report on the world sanitation state of play, taking into account the critical situation to deliver sanitation for all by 2030, with regard to the impact on health.

WASH is particularly affected by this situation, since many international institutions are seeing a sharp decline, for example, in investment expenditure (IFC, GLAAS, WHO,...). While the investment gap was already significant to reach the goal of universal health and sanitation coverage, by 2030.

WASH involves an integrated water strategy focused in the Mediterranean context, on sanitation associated with a multi-partner health strategy (because also regarding education, gender, vulnerable population and poverty).

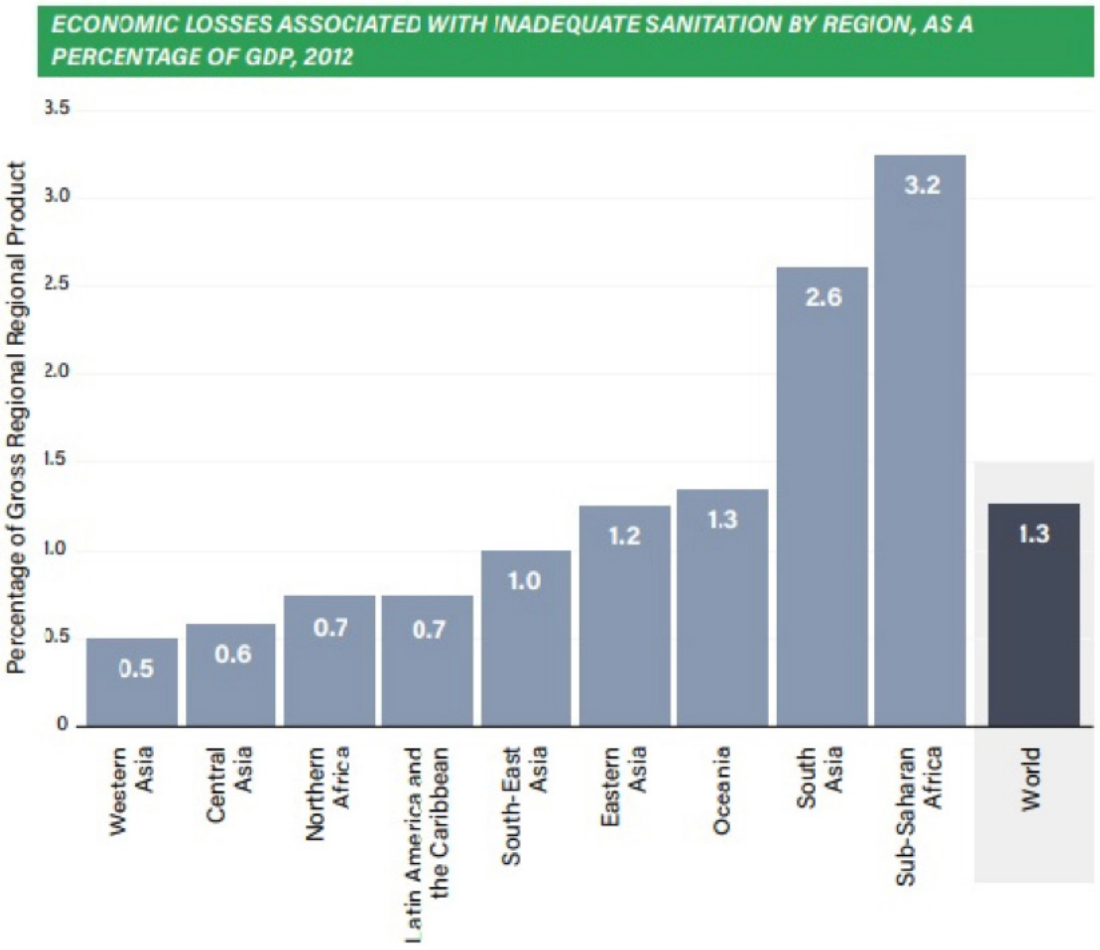
From this point of view, it is a particularly complex set of stakeholders, which are not part of a shared logic prioritization, but inter-act: national and local policy makers, development agencies, experts and "advocacy" networks, civil society, financiers-donors, scientists.

Thereby, the prioritized question in a WASH strategy becomes the global governance. Thinking about this involves thinking an incentive strategy of alignment between the different actors and sectorial strategies, which is the basis of a shared framework. This report is, at this stage, a preliminary report, because discussions with potential partners are sufficiently advanced for designing axis of cooperation, like work tracks, and giving a framework for actions. However, they don't cover the whole field of action and require formalization. It depends on stakeholder's arrangements, or at least on their will to follow a common pathway.

3 - Keys challenges in the Mediterranean Region

3.1 - Overview

Inadequate sanitation poses strong health risks and increases vulnerabilities, from contaminated drinking water to life-threatening forms of diarrhoea, particularly for poorer segments of the population, who are most exposed to inadequate human waste disposal. According to WHO, this is the main factor of health risks. The economic losses associated with poor sanitation is estimated by WHO[1].



[1]State of the World's Sanitation report WHO 2020.

In 2014, around 93% of the population had access to improved sanitation[2]. Access to safety managed sanitation has increased in the South sub-region by 6% since 2003. In the recent years, more than 5,7 million people living in urban areas and no fewer 10,6 million rural dwellers have no access to improved sanitation systems[3]. There is room for improving the integrate management of water and integrate policy priorities. For instance, driven by a higher demand for water and lower water availability, few countries are making significant advances towards effective water reuse policies.

Access to improved sanitation services in the Mediterranean region is generally above the world average. Due to the migration from rural areas and the existence of people displaced by conflicts, the consequent increase in urban populations, the emergence of "pockets" of urban poverty, the planning of sanitation services remains challenging.

Ensuring access to sanitation services in unregulated peripheral quartiers and in medium and small-size towns involves the whole cycle of services delivery: mobilisation of financial and human resources, planning and design, construction, operation and maintenance as well as policy making.

In this context, special attention must be paid to municipal wastewater management. The provision of wastewater treatment varies across the region, but in many cases, treatment-plants are often absent or do not function optimally.

All this encourages targeting WASH on a voluntary upgrade of sanitation sector.

3.2 - Defining the Challenge

According to WHO, globally sanitation suffers from chronic under-prioritization, lack of leadership, under-investment and a lack of capacity. While the ENIP-countries have national policies and plans to support sanitation, few have allocated adequate human and financial resources to actually implement them. It is closely linked to issues of governance, but also of the legal status of sanitation, which is considered as a depollution sector rather than supplier of a public good (unlike the drinking water sector).

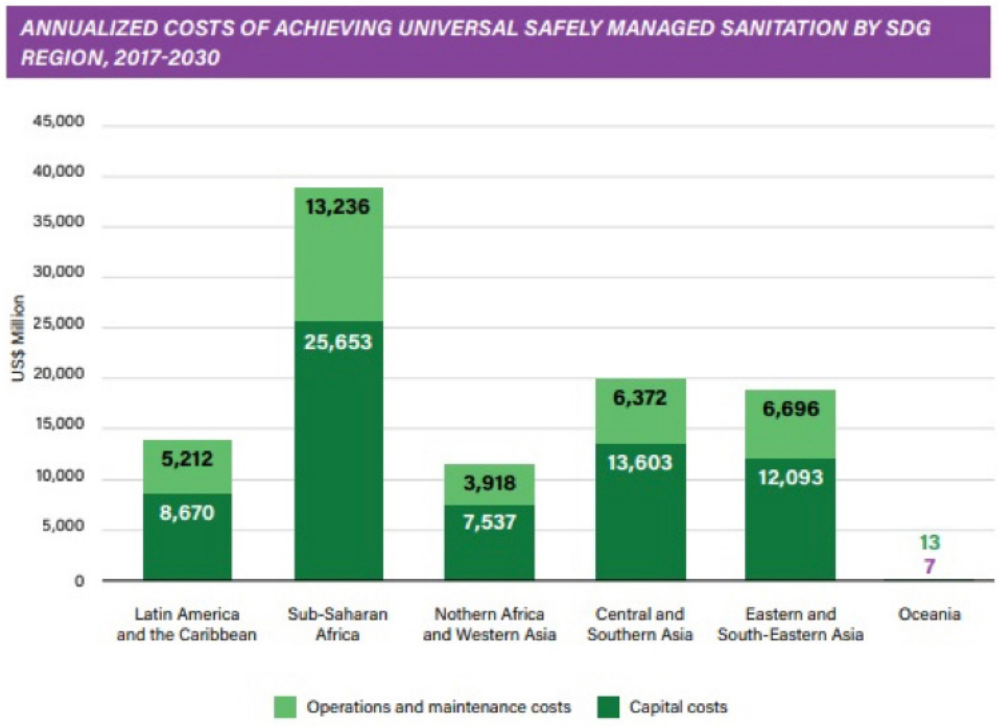
[2]H2020 Mid-term review EC 2014.
[3]Reach Horizon 2020 EC/UfM 2020.

Donors tend to prioritize water over sanitation. According to WHO, aid disbursements for sanitation were in average half that for drinking water.

Public policies have a critical role to play. Sanitation is a public good in need of public funding that will allow everyone to benefit from improved health. Poor sanitation creates serious negative externalities, creating public health hazards and jeopardizing economic development.

Significant financial costs can result from poor sanitation: out-of-pocket payments and travel costs for households seeking health care, income losses associated with sickness, lost productivity; and coping costs resulting from environmental and water resource pollution such as water treatment.

WHO estimates the annualized cost of achieving safety managed sanitation at 11,4 billion $, in Northern Africa and western Asia. Globally, more than 90 per cent of basic sanitation costs are in urban areas in the region[4].



[4]State of the World's Sanitation Report WHO 2020.

What are the interactions[5] ?

	SDG GLOBAL TARGETS	SDG GLOBAL TARGETS
	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 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated **wastewater** and substantially increasing recycling and **safe reuse** globally	6.2.1: Proportion of population using (a) safely **managed sanitation services** and (b) a handwashing facility with soap and water Additional indicator for SDG 6.2: **Proportion of population practising open defecation** 6.3.1: Proportion of **wastewater safely treated**
	1.4: By 2030, ensure all men and women, in particular the poor and vulnerable, have equal rights to economic resources as well as access to basic services...	1.4.1: Proportion of population living in households with access to basic services (including access to basic drinking-water, **basic sanitation** and basic handwashing facilities)
	3.8: Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality and affordable essential medicines and vaccines for all	[Proportion of health care facilities with basic water, sanitation and hygiene (WASH) services, including **basic sanitation**]
	4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	4.a.1: Proportion of **schools** with access to.... (e) basic drinking-water, (f) **single-sex basic sanitation facilities**, and (g) basic handwashing facilities

[5]State of the World's Sanitation Report WHO 2020.

WASH – Health and COVID-19

• Safe drinking-water, sanitation and hygiene are crucial to human health. Safe WASH is not only a prerequisite to health, but contributes to the well-being of the populations, school attendance and helps to create resilient communities living in healthy environments. Drinking unsafe water and no secured sanitation impairs health through a lot of infectious diseases. That is why Health is the fourth pillar of the Water-Nexus.

• COVID-19 significantly increases the gaps and the stakes for the next years. WASH seems to help reduce the transmission of COVID-19, through hygiene behaviours and facilities (water containers and soap), sufficient water from reliable and easily accessible sources and secured sanitation. There is a strong link between COVID-19 and wastewater and sanitation. COVID-19 has encouraged to explore the way wastewater could help to detect the spread of virus analysis.

- Firstly, COVID-19 has highlighted the needs to invest in wastewater facilities and adequate sanitation. According to IFC[6], the outbreak of the pandemic is projected to slow down in the water (and sanitation) sector. It has also increased the importance of operational reliability due to the cost of disruption. IFI's and some Donors expect to address the gap by:

  • supporting the investments in digitalization
  • implementing dedicated financial mechanisms and incentives
  • supporting a long term CAPEX strategy for the operators
  • developing knowledge sharing and capacity building, based on peer learning

- Secondly, related to "pandemic policy management", COVID-19 reveals the importance of this essential service WASH to preparedness, prevention and response to face the pandemic. WHO notes there are some deficiencies in the public policy. To face these shortcomings, one of the work track is the digitalization, especially in sanitation. COVID-19 has significantly affected the fabric of water governance and management, those managing water and sanitation are rethinking their operating style and responses mechanisms to adapt to the pandemic crisis.

[6]IFC, The impact of COVID-19 on the water and sanitation sector 2020.

Especially, communities are turning to environmental surveillance, and especially wastewater-based epidemiology, as a complementary tool to prepare and respond bother to the pandemic and future outbreaks of diseases, through a digitalization strengthened at all management levels.

• To strengthen the link Water-Health with a strategic approach, WHO recommends to:

- Empower countries through multi-sectorial technical cooperation, advice and capacity building to public authorities, practitioners and partners.

- Engage with regional platforms, and advocate for WASH to influence political will and policy uptake of effective WASH strategies and support multilateral/regional level instruments, framework and protocols in the field of WASH.

This is work tracks for a potential cooperation with WHO at the regional level.

3.3 - Targeted Mediterranean Challenges in the WASH System

In the Mediterranean region, in view of the finding shared by international institutions (WHO[7], GLAAS[8], WB[9], WWC[10], OECD[11]...), the main gap is related to policy coherence, efficient push of financial strategy and a more inclusive governance organization. This is shown in the Annex on Country Analysis.

3.3.1 - Policy Coherence

The implicit regional assumption that WASH institutions can be improved when other development sectors operate with business as usual approaches cannot be a viable option. This must be improved at the same level like other sectorial strategies.

[7]State of the world's sanitation WHO 2020; Water Sanitation and Hygiene Strategy 2018-2025 WHO 2018.
[8]Financing universal water GLAAS report 2017.
[9]How can the financing gap be filled WB paper 2017.
[10]Increasing financial flow for urban sanitation WWC report 2018.
[11]Financing water OECD paper 2018.

Identify interactions and synergies across economic, social, environmental and health areas related to WASH sectors is the condition to enhance efficient policy. It implies dismantling policy silos to undertake integrated WASH strategy and inspiring government commitment and leadership.

In other words, how an integrated WASH strategy can be implemented, while the bodies in charge of the water sector are distributed among several structures (few exceptions: Egypt, Albania, Malta) and not really linked with the health sector and others?

A "Policy Engineering" strategy based on policy dialogue tools, advocacy initiatives, shared good practices and capacity building programs could be a pathway.

3.3.2 - Pushed Financial Strategy

There is a fundamental misalignment between crisis responses to the COVID-19 pandemic and the long-term outlooks for infrastructure-heavy investments in sanitation.

Even if the rate of access to basic sanitation is high (more than 90%), the existence of areas of poverty that do not have sanitation services constitutes a significant health risk, increased by the COVID-19.

A pushed financial strategy must be considered, focused on innovative solutions, with the objectives to:

- make a more efficient use of existing resources,
- incite using public funds in a more targeted manner,
- attract other sources of financing,
- focus on De-Risking the sector.

3.3.3 - Inclusive Governance Organization

Wash-System's mindsets understand that these are complex networks of different institutions, incentives, actors, and dynamics interactions who produce water, sanitation and hygiene-related outcomes.

For the WASH sector, in the Mediterranean Region, inland water resources, emission (discharges) of wastewater and tap water (all public health related water quality issues) are regulated by different institutions. Therefore close and efficient coordination must be ensured between the WASH sectors. Sectorial fragmentation can present significant difficulties. WHO recommends to:

- ensure greater public participation,
- prioritize risks for vulnerable groups,
- strengthen the capacity to implement change process through a close association with local governments.

A dynamic of change is advocated. This required to set up mechanisms and tools, where the regional level, as UfM, could contribute.

Similarly, the training of O&M staff is a major issue. An appropriate and efficient O&M is crucial for sanitation services with emphasis on wastewater treatment. But the need for funding with respect to training and operation expenditure is not allocated in due time, especially to high energy cost for secondary and advanced treatment and to reluctance to working wastewater operation facilities.

Otherwise, the focused-infrastructure approach, which is the main pathway in the Mediterranean Region, has to be completed by a service-delivery approach.

This requires a concerted effort with inputs from different actors, such as policy makers, authorities responsible and service providers who can manage operations and maintenance. The interaction of all these components determines the quality and reliability of the WASH services.
In this case, an efficient governance organization in WASH system supposes above all to:

- clarify ambiguity related to the roles and responsibilities of various stakeholders
- strengthen the mechanism that bring different stakeholders together
- encourage harmonised approach and collective actions of sectorial activities.

4 - Outlining the WASH Strategy in the Mediterranean Context

The overall ambition of the project is to outline how strategic actions and investments in governance, financing, data, capacity development and innovation can assist WASH policies in making rapid progress.

National and local government can drive the uptake of new approaches to both rural and urban sanitation water treatment and reuse programs, which must be backed with adequate human and financial resources. The inclusivity and mobilized participation from across society are key.

Scaling up successful sanitation models requires strengthened coordination among government ministries, departments and agencies responsible for sanitation delivery as well as the private sector, civil society and households.

The choice of implementation approaches, focused on WASH services-approach, should be based on lessons learned from previous sanitation programs, including the level of capacity and resources needed.

4.1 - Five Blocks of Effective Approaches

A - Sanitation must be recognized as a multi-sectorial issue that has impact across health, social development, education and economy. According to WHO's recommendations, sanitation needs to be defined as an essential service for which lead institutions are responsible and can be held accountable. The inclusion of sanitation in national policies, strategies and plans can serve as a concrete indicator of political will and priority given to sanitation.

Lead institutions need to develop multi-sectorial sanitation policies, that use inter-sectorial coordination mechanisms and planning processes.

It includes the focus on the service quality regulated at all steps in the sanitation service chain based on public health risk, and safe sanitation systems delivery, based on technologies, implemented through service models tailored to local context and replicable (implementing demonstrators?).

To achieve gains in extending basic sanitation services, a focus on sub-national peer-to-peer learning is recommended. More globally, the integration of WASH/ sanitation management into mainstream planning for cities and rural areas is the key for success.

B - Clarifying which funding sources and financing instruments can be mobilized is critical. Domestic public finance, including targeted subsidies, remains critically important. The budgeting of the costs (operation and maintenance) over the long term is a condition of financial sustainability. Financial tracking systems can be used to support decision-making by monitoring sanitation financial flows and expenditures, and promotes the involvement of non-domestic financial partners.
In fact, domestic public finance cannot be the exclusive source of funding. Establishing separate budget lines for sanitation is key (making clear budget allocations to fund sanitation programs in the framework of a financial tracking system) and allows a wider approach, not exclusively focused on individual projects, from Financial Institutions and Donors.

C - Capacity development and institutional strengthening are essential to plan, design, finance, build and sustain improved WASH/sanitation systems.
In accordance with WHO, in many countries, there is a lack of coordination. For instance, sanitation is a major determinant of health outcomes. Effective integration of sectors addressing sanitation will require increased capacity. The first step is to prepare an agreed sector coordination strategy, that combine agreements of authorities with recommendations to mainstream WASH-related actions.

A more service-oriented approach means a higher degree of interaction with users. It impacts territories and local government, which must have adequate capacity to oversee and deliver.
Peer-to-peer learning is very effective in sanitation. Ministries, local government exchanges could be facilitate to disseminate good practices for achieving programs targets.

D - "Future-proofing" the sector necessitates innovative approaches, like using no-conventional wastewater treatment and reuse, partnerships, system and technologies stabilised.

In particular, urbanization on the coastal areas and migration call for news ways of meeting the needs of high-density population.
Innovations in sanitation systems and technologies can mitigate and adapt to the risk posed by resource scarcity, urbanization and climate change. Thinking beyond conventional sewage system is no longer an option.
The question is however twofold:

- Existence of "stabilized" business models?
- Which degree of acceptability among the population?

Research must be scaling up to meet this kind of challenges, such as:

- management of non-sewered sanitation,
- developing appropriate climate-resilient sanitation technologies,
- developing effective behaviour change methodology.

E - Quality data allows to target investments and public funding. Supporting institutionalization of data collection and monitoring is a condition of integration sanitation with health surveillance. However we know that data on sanitation are partial and unreliable in the region. A work program with UNEP-MAP/WHO could be useful.

Another domain, if we want target funding and identify financing flows, is to promote an account strategy, through the tracking study promoted by GLAAS/OECD.

Is a multi-level partnership, which could be initiated to push the WASH strategy. A role for the regional level could be to implement incentives that accelerate the transition in a WASH services-approach towards robust strategies and achieve the SDG's related. The European Commission and WHO (and other international stakeholder institutions, like OECD, UNEP-MAP,...), main key players, could foster and accelerate this transition, through their instruments, with the support of IFI's.

UfMS, like" policy engineer", will promote regional dialogue and initiate partnerships for accelerating this transition and create an enabling environment for achieving the SDG's strategy.

5 - The UfM WASH Strategy

The COVID-19 pandemic is a factor of complexity, since it tends to slow down the achievement of the SDG's, with a strong impact on health and economic status of population and increase in poverty.

But could also be an opportunity to move towards an acceleration of the implementation of SDG's, if a policy alignment can be engaged in few sectors, like the WASH (related to 6.1 and 6.2 SDG's targets) which are particularly complex in terms of multi-sectorial areas, governance, socio-economics models, financial strategy.

Two kinds of initiatives/work-tracks could be highlighted at a regional level, in accordance with the UfM Water Agenda (the first condition is the support of Countries and a political will to be part of an aligning strategy) :

-Strengthen policy dialogue through the provision of tools that operationalize in a more concrete pathway UfM Water Platform.

-Use a policy of influence in different areas, with the objective of associating relevant partners, that are keys in the WASH-system and promote an advocacy strategy.

These two work-tracks are declining the outlining structured in five block effective approaches in the form of a UfMS action plan, which could be the basis of a regional strategy.

5.1 - Policy Dialogue Tools

Four tools could be subject to special attention and specifically address the questioning about "policy coherence". WASH strategy is complex and multi-dimensional, we event prioritize on sanitation and wastewater treatment, because all the components of WASH inter-act.

1. **Promote a twinning strategy,** with support of the EU.

Twinning is an EU Instrument for institutional cooperation between public administrations and partner countries.

Twinning projects bring together public sector expertise from EU member States and partner countries with the aim of achieving concrete operational results through peer to peer activities.

A water project in the west Balkans was promoted last year. Is it possible to put on the table, in the framework of the UfM Water Agenda, the principles to identify 1-2 projects for the next years, focused (partially?) on WASH policy (regulatory aspects, institutional arrangements, ...)?

GWP Med could be affected to prepare the twinning process, linked with TAEIX program.

It's a strong political decision, which requires the agreement of the representatives of the regional dialogue Platform.

2. **Launch a Follow-up Mechanism** of the country WASH measures, build in the same spirit as the precedent for Women studies (2018/2019), led by UfMS. The UfM Water Agenda could promote a regional mechanism for monitoring measures taken within the framework of WASH .

It could be backed by countries initiatives and include measures related to integrated actions policy, financial strategy and governance organization and emphasise the integration of the WASH component into on-going actions by national authorities and development agencies. The option considered for the identification of legislative and administrative barriers depends on the agreement of the countries that volunteer.
In any case, this supposes to acquire some kind of shared "indicators" through country projects and initiatives to monitor the progress made in WASH matters for the benefit of decision-makers.

GWP Med could take the lead in this process in line with the UNEP MAP data strategy, with the agreement of WHO and the involvement of OECD.

3. Promote a peer-to-peer process.

According to WHO, peer learning is very effective.

• However the UfM mandate doesn't allow to interfere directly in national strategies, taking the form of policy reviews. On the other hand, we can rely on the previous initiated by UfM, about Women Empowerment, a kind of **follow-up approach based on initiatives/measures in the WASH policies.** This is justified by the complex and multi-dimensional nature of this policy, but requires a strong political consensus.

A second step could be in a medium term implemented. A regional platform on the WASH policies and its financing linked with the Water Agenda could be organized. It would be fed by national policy dialogues from voluntary countries, at their requests. These dialogs could be carried out by partners, like OECD and GWP Med, and financed by a third party (EC, SIDA, IFI's, Development Banks,...). It could be one of the outputs of the financing roundtable (see point 4).

The role of UfMS would be to:

- create the regional platform, which is an extension of the actual policy dialogue platform, to politically support its operation and the demand of countries,
- endorse the national dialogues, based on a specification standard,
- and support the research for funding.

• The easiest way is to play at the local level, by promoting peer-to-peer experiments on WASH within the territories **(pilot territories)**. The local and water/health decision-makers "confront" their needs, strategies and actions, to diffuse and decline in different validated approaches and nourish structuring public policies.

The methodology is to:

- explore the field crossing health/water issues and urban scales (linked with its hinterland),
- promote a collaborative production with "peers" in a panel of international practitioners,
- test operational productions/ideas.

The Covenant of Mayors Mediterranean program could take the lead, with the support of IME and WHO. Especially, peer-to-peer approach has been practiced by IME through its members divided in four categories performing all in WASH sector. The IME experience addressing these concerns is very valuable to be exchanged between them, to be reported at the regional level for replicability and applied in pilot territories.

4. Extend the work of the UfM Financial Strategy, in partnership with OECD, EC, EIB, WHO and GWP Med, by building a financial strategy round table on Financing Sanitation. Sanitation infrastructure is typically very long-lived and capital-intensive. It requires a long-term strategic planning of investment pathway and will be also focused on institutions and information.

It draws upon political leadership and technical expertise, with the ambition of facilitating increased financing of investments that contribute to water security related to health, which WASH is the core system, by:

- improving the evidence-base with analytical work on how to overcome the barriers to investment and innovations,
- pushing the boundaries of traditional thinking about financing water-related investment.

This roundtable will extend the work of the UfM Water Financial Strategy, by updating data, relying on recommendations and doing a special focus on the "weak link" that is investment in sanitation. It will be implemented in three pillars:

- mapping and estimating financing flows
- analyzing policies that affect investment flows
- promoting pathways and approaches that facilitate investments.

This kind of roundtable is not a "one shot" event and requires some organisation. This supposes political commitment of a host country.

Objectives	Actions	Stakeholders	Comments
Strengthen institutional strategy	Twinning strategy	EC-TAEIX/ GWP Med	To be validated by countries
Strengthen institutional strategy	Follow-up WASH measures	GWP Med/ OECD/ WHO	To be validated by countries
Promote peer learning	Promote a pilot territorial process	Covenant of Mayors Med/IME/ WHO/GWP Med	Strong country validation
Push a WASH/ sanitation financial strategy	Round-table on financing WASH/ sanitation and non-conventional treatments	EC,OECD/GWP Med/WHO	Determine more precisely the focus related to WASH and the conditionality

5.2 - Policy Influence

Six topics fall under the policy influence of the UfMS strategy. These topics are directly related to the global outlining strategy and address the three identified challenges :

1. Build a priority partnership with **WHO**, focused on WASH, taking advantage of the momentum relating to the sanitation study, published in November 2020. WHO has the objective to provide regional (and country) support tailored to local context. There is already an example that could be analysed, the UN Economic Commission for Europe (UNECE)/WHO on Water and Health in the European Region.
This protocol aims to assist Member States in operationalizing WASH-related SDG targets (which concern us: the SDG 6), and to provide platform to facilitate inter-sectorial work and whole-of-public policy approaches enablers for a better WASH.

The second priority partnership is with **OECD**, focused on the financial strategy, taking advantage of programming financial roundtables in different Regions (Asia, Europe). The content of this cooperation must be detailed rapidly. The question is to encourage potential financiers (in the framework of the Water Finance Coalition) and stakeholders not to think only in terms of so-called bankable investment projects (even if the investment cases are essential), but also to think in terms of global strategy which integrate the" non-price benefits" in WASH: valuing water/sanitation means considering all the benefits derived from water management, in terms of valued goods and services, as well as reduced water-health risks.

EC, and GWP Med will be strongly associated, in the framework of the further "**Water Environment Support**" European Initiative.

Other initiatives of partnership could be considered in the medium term, with the **Green Climate Fund** and the **Global Environment Facility**. However these two institutions/instruments are not really well known in the Mediterranean Region and the topic of water in these institutions must be appreciated . UfMS could play a specific role to be defined, for example to have an overview on eligibility criteria and to share with the countries and stakeholders. The form it will take needs to be defined.

2. Promote a policy-makers program of capacity building on WASH, in line with the "Follow-up Mechanism", with the support of WHO and GWP Med. The topics will be detailed, according to the elements that emerge from the different initiatives retained in the policy brief and the UfM Water Agenda. The capacity building program should aim to assist tailor-made training, based on a comprehensive assessment of the training needs of the target audience.

3. Seize the opportunity from the renewal of a number of Mediterranean European programs (H2020, Life, in particular), which are especially in the framework of the "Water Environment Support" Initiative, to promote the importance of WASH services, like key topics. It is a good momentum to take this kind of initiative. The EC-ENIP policy will be designed in 2021.

The other interesting momentum is the call of Public Development Banks (November 12, 2020) focused on action towards a Water Finance Coalition. The Agence Française de Développement (AFD), the WorldBank (WB), the Development Bank of Latin America (CAF) and the European Investment Bank (EIB), in cooperation with Sanitation and Water for all (SWA) take the opportunity to call Public Development Banks to gather and work together towards a **Water Finance Coalition**.

The Water Finance Coalition will be dedicated to finding concrete solutions for improving financing of sanitation projects, in particular, and to ensuring a better integration of water as a transversal issue in public development banks'daily activities.

Many international institutions (OECD, GLAAS, WB,...) insist on the importance of implementing Financing Facilities that save significant transaction costs.
The World Bank, in the framework of the Water Global Practice, is thinking this year about the design of Financial Facilities to support Water Utilities in the COVID-19 Crisis.

A **mapping of the Financial Facilities** applied to the Mediterranean Region could be the first step of a process of advocacy/discussion and partnership with the European Commission (ENIP strategy) and Water Finance Coalition members (and others).

The objective is to ensure the interest of such a Facility in the Mediterranean context, pre-define the object, the structuring and the financial dimension, depending of the capacity of partners. Such an initiative can range from the preparation of the projects to the financing of investment cases, or even participating in a blending system for investments.

4. **Promote innovative strategy**, like what is done in the fields of energy and solid waste, focused on **demonstrators** (focused especially on reuse, wastewater treatments).

Demonstrators projects are projects that put into practice, experiment, evaluate and disseminate actions, methodologies or approaches that are new and which could be applied elsewhere.

The issue raised here is how the SWIM European program will be pursued and amplified in the framework of the WES program (and how to do the link with the Life program ?).

Secondly, how IFI's, in the framework of the Water Finance Coalition, could support this kind of projects ? UfMS could advocate for this.

5. To think about a connection with UNEP MAP/OECD about a sanitation accounting strategy (tracking-GLAAS methodology ?) and to promote knowledge devices targeted on innovation. In this context, promote the initiative of an Observatory focused on non-conventional water treatments, led by IME.

Engaging a discussion with PRIMA, supported by UfM, to integrate in the next call for tender 2022 WASH in the water activities.

6. **Integrate territories/ local dimension in the UfM Water Agenda**.

WHO recommends that WASH services are selected according to the local context, for two reasons:

- Alternative investments choices that minimize the costs relative to "classical" investment choices are smaller.
- Move from an infrastructure logic to a service logic which involves the active participation of all stakeholders at the local level.

From UFMS' point of view, an innovative strategy presupposes both the mobilization of incentives, tools relating to the policy dialogue and action plans, and taking into account the subnational dimension to feed the flagship project pipeline. Indeed the large volume of potential flagship projects/initiatives will come from local planning processes.

Different initiatives, integrating the local dimension, could be initiated by UFMS.

- Integrate a dimension of decentralized cooperation in the labelled projects, when it is relevant.
- Build a partnership with the Covenant of Mayors Mediterranean to promote WASH activities related to urban scale. The Workshop organized by UfMS on energy efficiency in 2018 is a precedent that could be replicable, like a launching event.

- Build a partnership with ARLEM/Region Committee which is an advocacy institution at the European Commission: WASH could be a thematic for ARLEM works programming.

Objectives	Actions	Stakeholders	Comments
UfM like "policy engineer"	Develop a partnership with key players	WHO/OECD	Two key players not actually in the loop. What kind of partnership?
Involve policy makers in the framework of UfM	Capacity building related to the topics described	GWP Med/ WHO	WASH UfM Agenda
Relaunch the reflection and advocacy on a pushed financial strategy	1-Discussion with the EC and the Water Finance Coalition focused on Financial Facility 2-Mapping of Financial Facilities	EC/AFD/EIB/ WB	There is a favourable momentum
Promote innovative approaches	Promote demonstrator projects and flagship initiatives	EC/IME/GWP Med/IFI's	This exists in other areas. Pursue and amplify the SWIM strategy
Develop knowledge sharing and research for better policy	Promote: 1-An account strategy 2-Partnership on data 3-Observatory on non-conventional water-treatments 4-In PRIMA, call the WASH dimension	UNEPMAP/ OECD/ PRIMA/ WHO/IME	The most important thing is to promote an account strategy and to deepen partnership with PRIMA
Integrate territories in the UfM Water Agenda	1-Integrate a dimension of decentralized cooperation in labelled projects 2-Build a partnership with theCovenant of Mayors Med 3-Developp an advocacy with ARLEM	ARLEM/ Medcities/ AVITEM/ Covenant of Mayors Med/ IME	This is a key element of an organization of governance at the regional level

6 - Conclusion

The key option for UFMS is to promote a WASH innovative strategy, linked with the WHO strategy for change, focused on a cost effective approaches, innovative financial mechanisms and a digitalization related to the COVID-19 context.

It is an ambitious work program, which requires a global agreement between stakeholders and countries, and supposes a significant budget, programd over several years. Prioritize actions in a "logical tree" would be desirable and useful and foreshadow a WASH regional strategy roadmap.

III - Annex 1: Examples of Country WASH Policies

Table of Content

Acronyms List

GLAAS: Global Analysis and Assessment of sanitation and Drinking-Water

IME: Institut Méditerranéen de l'Eau

UfM: Union for Mediterranean

SDGs: Sustainable Development Goals

UNEP MAP: United Nations Environment Program/ Mediterranean Action Plan

WHO: World Health Organization

WASH: Water Sanitation Hygiene

1 - Background of WASH

SDGs 6 dedicated to water and sanitation defines 8 targets. Among these, 6.2 refers to access for all under equitable conditions to adequate sanitation and hygiene services.

The WASH program aims to improve access to safe drinking water and sanitation and better conditions for hygiene.

The report issued by the initiative of "Water Global Analysis and Assessment of Sanitation and Drinking Water- UN GLASS" on hygiene, puts forward findings on national policies, plans, targets and finance.

Five key findings are as follows based on 2017 results: (UN/WHO 2017)

1 - National WASH budgets are increasing in line with the SDGs goals, yet national realities cannot keep up with global aspirations

2 - The SDGs require greater ambitions for WASH however, lack of financial sustainability for reaching the un-served and O&M services remains

3 - There is a progress in providing more and better data for decision-making compared to the previous reporting period

4 - Official Development Assistance (ODA) disbursements for water and sanitation are increasing, but there is still uncertainty related to future investments

5 - Extending WASH services to vulnerable groups is a "policy priority", but implementation lacks behind schedule

The authors of this report note that "*...understanding how governments and external support agencies (ESAs) are addressing hygiene is critical during the COVID-19 pandemic and will continue to be so afterwards...*".

The report, Hygiene-UN-Water GLAAS findings on national policies, plans, targets and finance, summarizes data collected by the WHO-led GLAAS initiative on how governments and External Supporting Agencies (ESAs) are supporting hygiene. Key findings include that countries have national policies and plans for hygiene, but **lack the financial and human resources to implement them**. Governments report insufficient funds for hygiene to achieve national targets.

The research found that household expenditures are high compared with government expenditures. Data from five countries show that household spending on hygiene is probably a significant part of all household WASH expenditure.

While data on hygiene policies, plans, targets, budgets and expenditures exist, they need to be improved, just nine out of 38 countries were able to provide coverage data for their hygiene targets and only 4% reported having sufficient funding to reach their targets.

The report highlights that "*...to better prevent and respond to public health crises such as the COVID-19 pandemic, governments must think of hygiene as not only about hand-washing with soap and behavioural change but also about investing in infrastructure...*"[1].

As such giving priority to adequate wastewater treatment and disposal investment must be a prerequisite with enhanced domestic treated wastewater reuse in water scarce Mediterranean countries, in particular.

2 - Treated Wastewater Reuse and Guidelines

The volume of wastewater produced in Southern and Eastern Mediterranean Countries (SEMCs) was estimated at 8,134 km3 (with the exception of Israel) which makes it a valuable source with regard to its quantity. In order to reuse wastewater, the first requirement is to have access to sewerage network connected to wastewater treatment plants (WWTPs)[2]. According to the World Bank records, Mediterranean populations are having improved access to sanitation services with about 90% for SEMCs and 97% for Mediterranean countries in 2015. However, these figures do not mean that there is available treated effluent for reuse. The situation is complex with regard to efficient interception of the sewage and treatment.

[1]UN/WHO, 2017
[2]IPEMED 2018

Although in coastal urban area, sewerage network is satisfactory, in general, inland less developed settlements have poor sanitation networks, with often leaking septic tanks, combined sewer system with overflow structure, illegal connection to streams etc. Also, reuse facilities cannot be implemented unless satisfactory sanitation scheme is in place, i.e. sewerage, treatment plant and network for reuse complying with the corresponding standards. Since any effluent quality does not match with the required reuse, the question of "which effluent quality for which reuse" is a prerequisite in this instance[3].

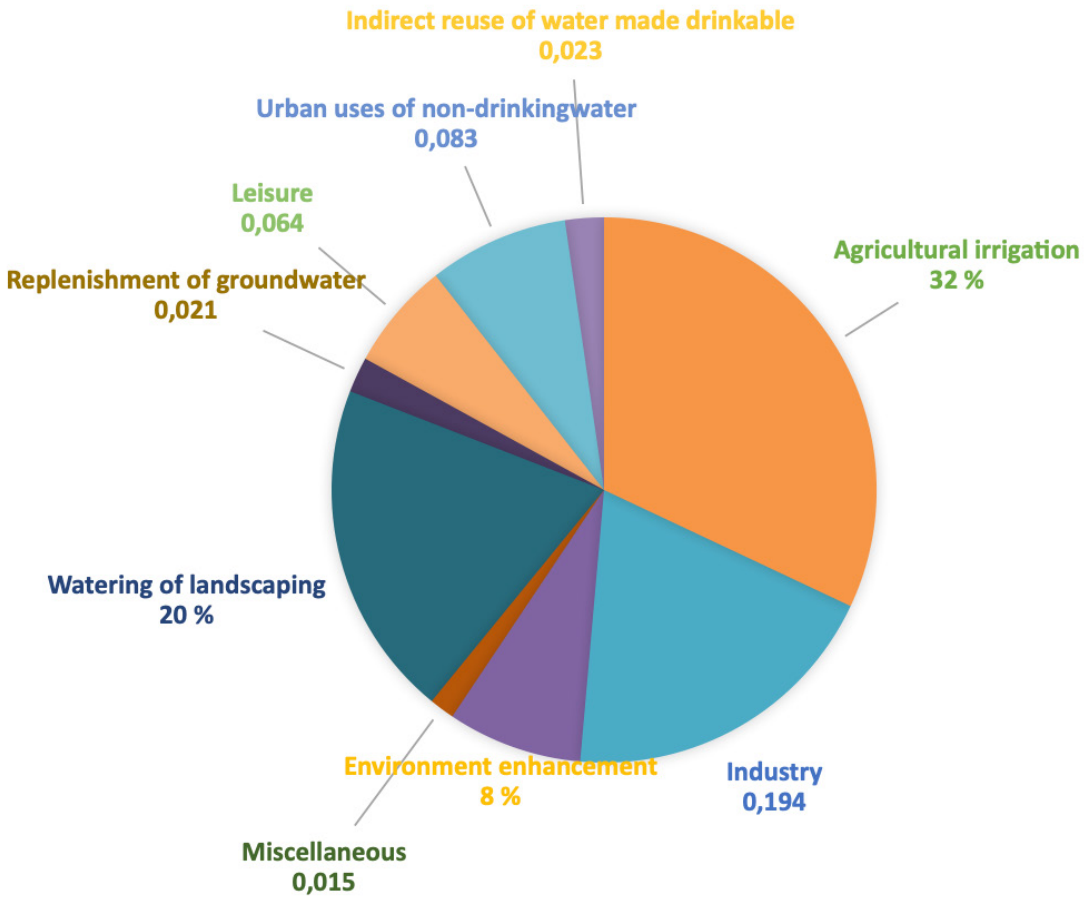


Fig.1 Sectors of wastewater reuse[4]

[3]MEDECC, 2020
[4]Reference: Lautze & al. 2014

2.1 - FAO Guidelines for wastewater reuse

In Mediterranean region countries, in the SEMC, in particular, water is becoming an increasingly scarce resource and planners are forced to consider any sources of water which might be used economically and effectively to promote further development. At the same time, with population expanding at a high rate, the need for increased food production is apparent.

Wastewater Treatment and Use in Agriculture is presented as a guide to the use of treated effluent for irrigation and aquaculture. FAO presented in 1992 the views on health risks, environmental hazards and crop production potential associated with the use of treated wastewater. It draws on the WHO Guidelines for health protection measures considered appropriate under various conditions. It explains the basis for conventional wastewater treatment processes and introduces natural biological treatment systems as viable alternatives in developing countries, particularly in hot climate regions. Recharge of aquifers as a means of treatment and indirect use of wastewater is covered in some detail[5].

2.2 - WHO recommended policies for wastewater reuse

The ultimate aim of the Guidelines issued by WHO entitled "Guidelines for the Safe Use of Wastewater, Excreta and Greywater, Volume 1: Policy and Regulatory Aspects, 2006" is to protect and promote public health. Adequate capacity is required at the national level to maximize the benefits of wastewater reuse, in agriculture and aquaculture, to minimize the health risks involved and to promote proper environmental management, ensuring long-term sustainability. An essential element of this national capacity consists of an enabling policy environment. The information needed to formulate decision-making criteria, establish decision-making procedures and create effective institutional arrangements for their implementation.

[5]FAO, 1992

The report states that: *"...good governance requires consistency in decision-making towards agreed objectives. Policies make up the framework to set national development priorities and provide decision-making criteria to guide the development process towards achieving them. Policies may lead to the creation of legislation. Legislation establishes the responsibilities and rights of different stakeholders and, supported by the institutional arrangements created between agencies, this determines which agency has the lead responsibility for creating regulations and who has the authority to implement and enforce the regulations. Translating policy into strategy requires the allocation of human and financial resources in accordance with the policy objectives and the capacities of the stakeholders..."*[6].

2.3 - EU Member States wastewater reuse regulation

The European Parliament has adopted the new Water Reuse Regulation as a means of combatting increased water scarcity in EU countries. This allowed publication of the final regulation in the Official Journal of the EU. Regulation 2020/741 was published on 5 June and applies from 26 June 2023. For the first time at an EU-wide level, the regulation defines minimum requirements for reclaimed water. It covers urban wastewater treated in a reclamation plant for safe agricultural use, protecting people and the environment. Water reuse is currently only undertaken in a few member states and the EU considers the practice to be far below its potential. If it is adopted more widely, the hope is that it will ensure a more predictable supply for farmers, and help them to adapt to climate change and mitigate its impacts. Accordingly, the regulation is expected to mark another important milestone towards the translation to a circular economy for water resources.

Developing a national policy framework to facilitate safe wastewater reuse requires first social acceptance, clear definition of the objectives of the policies, assessment of the ruling policy on environment, formulation of newer policies or adjustment of the existing ones, and finally developing a national strategy.

[6]WHO-UNEP, 2006

3 - Overview of Water and Wastewater Management in case studies

Egypt, Malta, Tunisia and Turkey have been selected as representative countries for a rapid assessment on water and wastewater management issues with an emphasis on reuse. Among the Mediterranean region: Egypt from Southeastern rim (Mashreq), Tunisia from Southwestern rim (Maghreb), Malta, an island country, EU member state, and Turkey a Northeastern country.

Fig.2 Total actual water resources per inhabitant in Mediterranean Region

3.1 - Egypt

Egypt has an approximate surface area of 1 million km2 and approximately 100 million population with a median age of 24,6. 8% of the population live in rural area. The River Nile is the backbone of Egypt's industrial and agricultural sector and is the primary source of drinking water for the population.

WASH Policy Review

Egypt has been suffering from severe water scarcity in recent years. Uneven water distribution, misuse of water resources and inefficient irrigation techniques are some of the major factors of unmet water security in the country. Egypt has only 20 cubic meters per person of internal renewable freshwater resources, and as a result the country relies heavily on the Nile River for its main source of water.

Rising populations and rapid economic development in the countries of the Nile Basin, pollution and environmental degradation are decreasing water availability in the country. Egypt is facing an annual water deficit of around 7 billion cubic metres. In fact, United Nations is already warning that Egypt could run out of water by the year 2025[7].

Access to safe water:

In the past ten years, UNICEF Interventions focused on providing safe water directly at home of the most deprived families. 17,832 households were supplied with safe water, reaching an estimate of 90,000 people in rural areas of the governorates of Assiut, Sohag, Fayoum, Minyia and Qena, and in two poor informal settlements of the Cairo governorate.

The initiative is currently being expanded to new districts through the 'Water for Life' initiative launched in partnership with the Rotary Club and the Holding Company for Water and Wastewater (HCWW). Between mid-2013 and May 2016, 8,000 household water connections were provided, reaching around 40,000 people in the same target areas. A revolving fund mechanism has been established to support the implementation of the water connection program.

Between mid-2013 and 2017, water, hygiene and sanitation facilities were improved in 39 schools to the benefit of 29,000 primary school children. More than 190 teachers received training on water, sanitation and hygiene, and 30 workers were trained on plumbing.

[7]https://www.ecomena.org/egypt-water/

Furthermore, UNICEF provides technical support to the Holding Company for Water and Wastewater (HCWW) and governorate water companies. In this regard, 420 staff members could enhance their skills in problem solving, monitoring and evaluation, and customer satisfaction. An additional 240 staff received training on managing and sustaining the revolving fund mechanism[8].

Raising awareness on better hygiene, sanitation and environmental-friendly practices:

The key messages conveyed through this intervention focusses on (i) hand washing with soap, (ii) water conservation and preservation in public spaces and at home, (iii) safe and clean water sources, (iv) proper use and cleaning of sanitation facilities at home, in schools and other public places, and (v) information about the main service provider: Holding Company for Water and Wastewater.

Between mid-2013 and 2017 around 29,000 families were reached through this intervention. Moreover, between 2007 and 2014, about 200,000 school children in over 370 primary schools were reached through hygiene awareness campaign in the governorates of Assiut, Sohag and Qena. This effort also included capacity building for 2,000 staff members who would conduct future awareness activities. Child-to-child, child-to-parents and parents-to-the community approaches have been adopted as entry points for better sanitation and hygiene practices.

Hygiene

In Egypt, water infrastructure coverage has grown substantially over the last decades. In 2014, around 91 percent of the Egyptian population received water directly at home.[1] However, a significant number of households are still not connected to the water network in rural areas and in urban slums.[2] 7.3 million people lack access to safe water, among which 5.8 million live in rural areas and 1.5 million in urban areas. In rural areas, around 12 % of the population in dwellings is not connected to the water system while, in urban areas, 4 percent does not have water connection. They are usually located in urban slums and poor settlements. [1] In urban slum areas, only around 77 percent of households have piped water at home and in many cases the connection is illegal.

In Egypt, 8.4 million people do not have access to improved sanitation, mostly in rural areas. Overall, 10 percent of the Egyptian population do not have access to improved sanitation, with marked geographical and socio-economic disparities according to the data of 2014.[1] In rural areas, on average, the share of population without access to adequate sanitation was around 15% in 2014, compared with around 1% among urban dwellers. [1]
96 percent of all Egyptian households have place for washing hands, with no

[8]UNICEF (https://www.unicef.org/egypt/water-sanitation-and-hygiene)

substantial difference between urban and rural households. However, in rural areas, around 13 percent of those households don't use soap or other detergent. [1]

Regarding water, sanitation and hygiene in schools, most updated statistics report access to piped water coverage at 98 % in urban areas and at 84 % in rural areas.

Lack of access to safe water and adequate sanitation facilities as well as poor hygiene contribute to the spreading of diseases, which significantly and negatively impact on children's health and nutrition. In Egypt, diarrhea is the second leading cause of death among under-5 children.

[1] Egypt Demographic and Health Survey 2014
[2] ISDF and UNICEF (2013) "Multidimensional Child Poverty in Slums and Unplanned Areas in Egypt"
[3] WHO, World Health Report 2015

Water Sector Policy Framework

The first national policy was drawn up following the construction of High Aswan Dam (HAD) in1975. Since then several strategies have been formulated to satisfy the demands for all water uses. The latest policy was drafted in 1993 whose main principles are based on the key principles of utilizing the available conventional and non-conventional water resources to meet:

- socio-economic needs,
- environmental needs.

The policy focuses mainly on :

- shifting the management from the supply-oriented approach to the integrated approach considering both supply and demand,
- demand management requiring improvement in water use efficiencies,
- increasing Egypt's share in the Nile water,
- environmental protection of water resources.

The future policies for water resources development are focused on:

- optimization of available water uses (e.g. minimizing the water losses, improving irrigation projects, shifting cropping patterns, include the cost recovery concept in the tariff policy),
- groundwater development strategies,
- reuse of drainage water,
- reuse of sewage,
- surface water resources development encompassing increase of Egypt's share of Nile water, desalination of brackish water, harvesting rainfall and flash floods water, water quality management.

Within the policy making process it has been emphasized that the success of the policy depends on public awareness, monitoring and evaluation, improvement of water resources management, enforcement of laws, international cooperation, use of modern technologies, research and development.

At present, the declining rate of water supply and quality deterioration is a warning issue although it is not considered to be critical yet. However, it can be stipulated that if appropriate measures are not taken, Egypt will be soon subject to significant difficulties concerning water resources. In order to face this challenge of the near future, specific strategies related to water management have been formulated responding to the critical issues and problems that are:

- demand imbalance due to population growth, agricultural and industrial development,
- deterioration of water quality due to uncontrolled and expanding agricultural activities
- change in Egypt's share of Nile water due to continuous decrease in the annual flow of the Nile at Aswan and lack of agreement between the nine riparian countries of the Nile concerning the expected new development of resources in other riparian countries
- ineffective use of water due to lack of strict measures to enforce appropriate cropping pattern and inefficient management of irrigation and drainage networks
- inefficient use of water due to subsidy to farmers

In the light of the above mentioned concerns **water management strategies are focused on raising awareness for water use efficiency, controlling the demand, protecting both surface and groundwater from pollution and preventing deterioration in water quality**.

Agriculture is a major component of the Egyptian economy, contributing 11.3 percent of the country's gross domestic product. The agricultural sector accounts for 28 percent of all jobs, and over 55 percent of employment in Upper Egypt is agriculture-related. Egypt's agriculture sector is dominated by small farms using traditional practices that do not meet international standards.

3.2 - Malta

Malta is a Southern European island country consisting of an archipelago in the Mediterranean Sea. With a population of about 515,000 over an area of 316 km2, Malta is the world's tenth smallest country in area and fourth most densely populated sovereign country. Malta has always suffered from the lack of available conventional water resources. Desalination and wastewater reuse, storm-water harvesting are in the core of water supply policy with emerging adaptation and mitigation policy measures.

WASH Policy Review

The major concern of Malta is the water quality problem. The Government has implemented **a 'Master Plan on Drinking Water Emergencies'** of which the main feature is civil protection. The Master Plan includes procedures to be implemented by the Civil Protection Directorate in co-operation with the Water Services Corporation to minimize the risks of water shortages. The Master Plan encompasses two major plans that are the Water Shortage Emergency Plan and Oil Spill Emergency Plan.

Water quality for drinking water has been an issue since the early 20th century. Disinfection with chlorination was initiated in 1909 with the objective of providing the public water with safer standards. Another improvement has been to replace the open channel water supply system by closed pipe system. These measures brought a significant improvement in the living standard with decrease in the loss of lives due to water-borne disease. The Health Authorities initiated a routine quality control program and results were documented in Annual Reports.

Quantity and quality issues: Lack of public water supply in the 1980's created social conflict and protests. Intermittent water supply in the networks led to network deterioration with rusty water at tap. High leakage levels have been another constraint. The response was first supply in sufficient quantity through increase in production of desalination capacity. Development of five Reverse Osmosis Plants (RO) namely Lapsi (24,000m3/day), Cirkewwa (18,600m3/day), Tigne (12,000m3/day), Marsa (6,000m3/day) and Pembroke (54,000m3/day) were commissioned. The result was the demand met and leakage quantified. The initiated water demand management with enhanced leakage control and awareness raising campaign resulted with success in meeting the demand at lower production rates. Initiatives from national water utility side to improve the tap water quality have been an ongoing effort over the years.

It is recorded that there are no signs of unsatisfied demand in Malta. However, future developments would lead to increase the water production, which may result in growing pressure on water resources availability.

Main issues in Malta are related to salinity and the process for disinfection. Blending of groundwater with desalinated water allowed to address nitrate content in groundwater. The national water utility has initiated a project to further improve drinking water production process through the Net Zero Impact Project[9]. This project will allow the water utility to address its impact on groundwater abstraction trough better spatial optimisation.

Water Sector Policy Framework

Total surface water resources are estimated at 0.5 million m3/year. Although the topography is very favourable, a greater amount of the surface runoff especially in coastal towns and villages is lost from urban areas via sewers or directly to the sea. Most runoff occurs after heavy torrential rain when surface water flows along river beds. Many small dams have been constructed across the drainage boundary to harvest the stormflow. These dams serve also to reduce soil erosion. The total storage capacity of the dams is estimated at 154 000 m3.

The renewable groundwater potential of the Maltese Islands is estimated to be 40 million m3/year. Based on various studies and especially groundwater modelling, it has been computed that to prevent the depletion of the main aquifer, which results in saltwater intrusion, only 15 million m3/year of groundwater would be potentially extractable. Based on recent records 19.75 million m3/year were extracted from pumping stations, boreholes and private wells and in addition to these figures it is estimated that approximately 3 million m3/year are extracted illegally from unregistered wells which make altogether approximately 22.75 million m3/year exceeding by far the allowable limit.

Apart from the two main sources for irrigation that are groundwater and treated wastewater, water harvesting is also widely practiced over the islands. So far, several small reservoirs have been built or dug in the rocks to collect rainwater to be used as supplementary irrigation. High techniques are being used in irrigation. With the introduction of micro-irrigation and improved farming practices, the yield of some products has significantly increased (By a factor of 3 and even higher in for some species). The water deficit for agriculture purpose is planned to be covered in particular by additional treated effluent. **Malta has a high percentage with 60% of its wastewater reused.**

Over the years the development of wastewater treatment plants has led to all wastewater in Malta being treated prior to its discharge into the sea. This has led to a remarkable improvement in the bathing water quality. **The next step in an environmentally conscious water cycle is water reuse, which has led to the developed of New Water for uses in the agriculture, landscaping and industrial applications**. Wastewater reuse solutions in the Mediterranean region is still very limited. The potential for wastewater reuse initiatives is significant both in terms of available technologies and the need due to mismatches between the demand and the availability of water resources.

[9]www.wsc.com.mt

3.3 - Tunisia

Tunisia, the smallest country in the North African region, has a surface area of 163,610 km2. Four physiographic regions, namely the mountains of the Northwest, the mountains of the South, the coastal plains, and the desert plains constitute the Tunisian territory. Tunisia is a water scarce country that has a Mediterranean climate with an average rainfall of 207 mm per year. However, substantial imbalances exist in water resource distribution between the North and the semi-arid South. From an administrative perspective, the country is administered in seven regions and 24 governorates. The country went through a political transition after the 2011 revolution, which triggered the so-called Arab Spring, with the adoption of a new Constitution in early 2014 followed by orderly elections.

WASH Policy Overview

In recent decades, Tunisia has made good progress in reducing poverty and increasing access to water supply, sanitation, and hygiene (WASH) services. More than 4 million people have been connected to water network and have had access to improved sanitation between 1990 and 2015. This is an important success, considering that Tunisia is currently home to 11 million people, out of which 33% live in rural areas. However, around 250,000 people in Tunisia still rely on unimproved drinking water from mostly unprotected wells and springs; of the 900,000 people who use unimproved sanitation, about half use shared latrines, and the other half use mostly unimproved latrines. There are also substantial imbalances in terms of water resource distribution between the better equipped North and the semi-arid South. A network of canals and transfers exists to transfer water from the North to the South. Water security challenges are predicted to be exacerbated by climate change in the coming years. The decrease in conventional water resources is estimated at about 28 percent by 2030[10]. The decline in surface water availability is predicted to be around 5 percent by 2030, alongside increasing salinization of coastal aquifers because of sea-level rise. Water supply security challenges are predicted to be exacerbated by climate change in the coming years. Opportunities for improvement are analysed and condensed into five clear recommendations for the way forward for the WASH sector in Tunisia[11].

[10]World Bank, 2016
[11]World Bank, 2018

Water Sector Policy Framework

Water is a priority for the government of Tunisia, under Pillar 5 of the country's Strategic Guidance Document: "promoting green growth for sustainable development"[12]. The Water Code, adopted in 1975, is the basic legal text governing any action in the water sector. Water policies in Tunisia are based on the target to increase water resource development within the framework of master plans for the Northern, Centre and Southern regions of the country. These are focused on setting up water management comprising mainly the components of water resources mobilization, transmission, distribution, and O&M of related infrastructure;

The plans and strategies of the 1990–2000 National 10-Year Strategy; the 2000–2011 Complementary Mobilization Strategy; and the 2030 Long-Term Strategy allowed for defining current and future prospects for the development of the WASH sector, which are summarized as follows[13]:

- Construction of medium and small-sized structures to achieve a resource mobilization rate of 95 percent,
- Integrated management of water resources,
- Water saving and demand control for all users
- Water resource protection.

Tunisia's new constitution, adopted in 2014 conceals the right to water for all Tunisians. However, safeguarding and proper governance of water resources fall under the responsibility and duty of relevant institutions. Later, Tunisia has adopted the Sustainable Development Goals (SDGs), out of which, SDG 6 focuses on improving the management of the water cycle at large and includes universal access to safely managed water and sanitation services by 2030. The commitment of Tunisia to universal access to safely managed water supply, implies piped water on premises for all by 2030. Likewise, universal access to safely managed sanitation is required under SDG6, which means adequate management of wastewater collection, treatment and disposal services.

Institutional Setting for the WASH Sector:

Two state-owned enterprises are responsible for providing the majority of WASH services across Tunisia. The household (drinking and household use for domestic purpose) water supply is managed mainly in two ways, under the supervision of the Ministry of Agriculture. The "Société Nationale d'Exploitation et de Distribution des Eaux" (SONEDE), which is the main water service provider in Tunisia, has the mandate to ensure water supply.

[12]Ministry of Development, Investment and International Cooperation 2015
[13]Ministry of Agriculture, Water Resources and Fisheries 2013

At present, SONEDE is responsible for supplying water to all urban and rural areas. In 2015, SONEDE ensured the household water supply of 85% of the population. This rate includes 100 percent of the urban population and 51 percent of the rural population. SONEDE provides drinking water to approximately 9.5 million people in total. The rural engineering services unit of the Ministry of Agriculture, Water Resources and Fisheries implements drinking water systems in scattered rural areas. The so-called "Community-based organizations (Groupements de Développement Agricole -GDAs) manage these systems and distribute water for household use and irrigation.

At present, there are approximately 1,400 drinking water GDAs and 140 mixed GDAs for drinking water supply and irrigation. These associations take advantage from support and supervision from the rural engineering services, namely at the setting-up phase. Supervised by the Ministry of Environment, the state-owned enterprise called the Office National d'Assainissement (ONAS) provides sanitation services, primarily sewerage and wastewater treatment. ONAS is responsible for services in municipalities (called communes) in its service area but also provides sewerage services in some more densely populated rural areas. ONAS currently works in 173 of a total 283 communes across the country, providing service to a population of 6.8 million inhabitants, making up 91 percent of the country's urban population (7.4 million inhabitants in 2014). The remaining 110 communes that ONAS does not cover are generally small and have poor or no sanitation infrastructure. In these communes, households use septic tanks or cesspools.

The number of inhabitants connected to the sanitation network in the communes covered by ONAS amounts to approximately 6.2 million as of 2014, corresponding to a rate of 91% connection. Households that are not connected to the ONAS network use septic tanks or cesspools. The government can request ONAS to construct sanitation infrastructure work seven out of the communes it covers.

Initially the mandate of ONAS did not include rural sanitation. However, because the rural commune status does not exist and governorate councils are not equipped to perform this activity, the result is an institutional loophole for the rural sanitation subsector, consequently to rural residential area. Therefore, strong disparities exist between urban and rural areas.

In 2015, approximately 97 percent of Tunisians living in urban areas used improved facilities compared with 80 % of those living in rural areas.

To ensure sanitation services in rural areas and to remedy to the underlined institutional loophole, an inter-ministerial council decided to assign responsibilities for rural sanitation according to the location and its population:

- In settlements where the population exceeds 3,000 inhabitants, sanitation services will be ensured by ONAS, which will collect sanitation tariffs in this regard.
- In settlements where the population ranges between 1,000 and 3,000 inhabitants, the sanitation service falls under the regional councils and communes, under the lead of the Ministry of Local Affairs and Environment, with the participation of the private sector and technical assistance from ONAS.
- In settlements with a population of less than 1,000 inhabitants, the population is encouraged to use on-site sanitation systems with the support of regional agricultural development commissions. The Ministry of Agriculture, Water Resources, and Fisheries has been invited to plan for the mechanisms required to help construct these infrastructures. Legislation (decrees and acts) required for the enforcement of sanitation responsibilities in rural areas in Tunisia had not been published as of August 2017. It may be a better option to implement collective sanitation facilities in the case of some settlements with less than 1,000inhabitants.

In terms of institutional supervision, the main actors are the Ministry of Agriculture, Water Resources, and Fisheries, and the Ministry of Local Affairs and the Environment, respectively. The first one is in charge of water policy for urban and rural subsectors and it has the duty of supervision for these duties. The second one is in charge of sanitation policy for urban and rural subsectors and it is the supervising ministry for sanitation.

Other public actors, such as the Ministry of Development, Investment, and International Cooperation and the Ministry of Health are also involved in the water supply and sanitation sector and it is particularly in charge of allocating public resources for the WASH sector.

The WASH sector in Tunisia is very centralized. Most of the budget allocations and funding are decided at central level. Nevertheless, at the subnational level, regional governorate councils are involved through the development and implementation of regional development projects in the urban water sector. Rural drinking water sector projects are planned under a close collaboration between the Directorate General of Rural Engineering and Water Development and SONEDE, in consultation with regional services. Key institutions involved in the water sector are structured according to three levels of decision making: (1) advisory boards, represented by the National Water Council, chaired by the Ministry of Agriculture and comprising representatives of several ministries, businesses, and national organizations; (2) bodies in charge of policies, represented by the ministerial departments involved in household water supply and sanitation sector; and (3) water utility operators and water users' associations.

Water Resources Management Prospects

Tunisia, which has an arid to semi-arid climate, is currently facing water shortage. The country's water needs totalled 2,8 km3 in 2000, the highest percentage of sectoral use being agriculture at approximately 78 %, and this is estimated to increase to 4,3 km3 or even 4,8 km3/year on the average in the near future. Yet corresponding renewable water resources (actual potential), which amounts to 4,6 km3 at present, may diminish as a result of the effects of climate change.

In the southern region, Tunisia has partial access to the deep aquifer system of the Northern Sahara that is shared with Algeria and Libya. The exploitation of this aquifer for water supply (0.54 km3/year in 2000) to the oasis has already caused the drying out of the surrounding emerging waters and artesian wells, which resulted subsequently in a further increase in deep pumping. Water supply policy in Tunisia for public use relies mainly on water transfer from the sole water producing basin, the Medjerdah. Conveying water from the northern region to the southern region of the country is ensured by several interconnecting dam reservoirs whose development has already reached the maximum possible level. The key issues of water management in Tunisia can be summarised as follows: (1) developing artificial aquifer recharge via flood waters; (2) increasing irrigation efficiency and developing participatory management in irrigation practices with the aim of decreasing overexploitation of groundwater; (3) putting emphasis on a progressive water tariff structure for drinking water in order to promote its economical use; (4) extending desalination plants from 19.3 hm3/year in 2011 up to 48 hm3/year in 2050, **and encouraging the reuse of urban wastewater as alternative supply sources**; (5) taking into consideration the import of virtual water in the general water balance (Besbes et al. 2014).

3.4 - Turkey

Turkey has territories on the European and Asian continents with a total surface area of 783562 km2. With its seven geographical regions and 25 hydrographic basins, Turkey has very varied climatic conditions ranging from wet to arid, resulting in potential water resources that are unevenly and disproportionately distributed over time and space. Heavy population in water scarce cities like Istanbul and expansion of agricultural land in Southeastern Anatolia region has led to water transfer between basins and the construction of several dams with high storage capacity (e.g. Atatürk dam) in order to meet increasing demands. Water resource management practices have been sector driven so far, but following the accession process with the **EU holistic approach encompassing environmental objectives and economic aspects in planning water resource development has been progressively introduced in the policy documents**.

WASH Policy Overview

The Turkish Republic has a long and rich experience in the water sector, starting from the 1926 Water Act. In terms of access to drinking water and sanitation services, a very large proportion of the population is served through the central and local governments' investments. While the population using safely managed drinking water services was 95% in 2002, this rate reached 99% in 2018 (SDG 6 Indicator 6.1.1). In the same period, the rate of municipality population using safely managed wastewater and sanitation systems increased from 83% to 90%, the number of domestic wastewater treatment facilities reached 881No from by increasing 126 No and the rate of municipality population having access to municipal services increased from 35% to 75 % (SDG 6 Indicator 6.3.1). Water and sanitation infrastructure projects are carried out by local administrations with the contribution of central government across Turkey. Under the Water and Sewer Infrastructure Program (SUKAP) launched in 2011, investments by local administrations are supported with the funds transferred from the central budget.

The main policies in line with **SDG 6 aim at establishing an integrated water resource management model by developing a national basin-scale classification system in line with the EU-WFD requirements**. This system necessitates the conservation and sustainable use of water resources, identification and monitoring the quantity and quality of water bodies (both groundwater and surface water) as well as the protection and improvement of water resources, prevention and control of water pollution. With respect to drinking and household water sector, the main goals cover securing the water supply system from source to tap for the entire urban and rural population, improve the water distribution networks to prevent water losses/leaks, ensuring financial sustainability in the provision of drinking water and sanitation investment and services, mainstreaming water treatment facilities and operate

them in line with the standards based on the required environmental protection level and classification of water basins. Measures for the sustainable management of water resources in order to protect and develop the potential of groundwater and surface water, prevent pollution as well as access to safe drinking water and sanitation services are regulated in detail in our legislation. As Turkey is a negotiating candidate country to the EU, her commitments are in line with the objectives of the EU legislation such as water savings in the basins by assessing the effects of climate change and all activities on water quality and quantity, promoting the reuse of treated wastewater. Overall, legislation and related regulations with applied standards are in line with those of the EU-WFD, in general with slight discrepancies.

Institutional Setting for the WASH Sector:

The Presidency of Strategy and Budget under the Presidency of the Republic of Turkey is the national focal point for sustainable development in Turkey. The Turkish Statistical Institute (TURKSAT) is in charge of coordination of data procurement and consolidation process concerning all SDG indicators. The Ministry of Agriculture and Forestry is the national coordinating body with regard to SDG 6. Other ministries responsible and mandated in this regard are the Presidency of Strategy and Budget, Ministry of Environment and Urbanisation, Ministry of Foreign Affairs, Ministry of Treasury and Finance, Ministry of Interior and Ministry of Health respectively. Central institutions responsible for the water sector are the General Directorate of State Hydraulic Works (DSI), Bank of Provinces (ILBANK), Turkish Water Institute (SUEN). Metropolitan municipalities in large cities like Istanbul, are responsible for the management of water and sanitation services within their service area through their water and sewerage administrations.

In addition to the National Development Plan and strategic plans of relevant public institutions, SDG 6 is supported by other key policy documents including the (1) Basin Protection Action Plans; (2) River Basin Management Plans; (3) Basin Master Plans;(4) Water Quality Action Plans; (5) Drinking Water Basins Protection Action Plans, (6) Climate Change Action Plan (2011-2023), (7) Turkey's Climate Change Adaptation Strategy and Action Plan, (8) Flood Management Action Plans, (9) Drought Management Action Plans,(10) Sectoral Water Allocation Plans, (11) National Basin Management Strategy,(12) Wastewater Action Plan, (13) Drinking Water Conservation Plans and (14) Action Plan for the Program on Enhancing Efficiency of Water Use in Agriculture.

Water Policy Framework

Water is supplied from surface and groundwater resources for all purposes. Supply from surface water has the largest share with more than 60%, and the rest is withdrawn from groundwater.

Domestic water supply with a ratio of 15% and industrial supply with 10% of the total, respectively, follow the irrigated agriculture, which is the highest water-consuming sector with an average rate of 75%[14].

At present, almost the totality of the urban population is connected to the water supply network, with a ratio of 98.2%, and, in rural areas, this ratio is close to 90%. The overall population connected to safe drinking water network is 92.2%, considering rural non-municipal population. NRW has a high average varying from 35 to 65%, depending on the network and location. However, this ratio has been decreasing, following the enhanced water leak detection and rehabilitation measures supported by legal provisions at central level. One of the main duties and responsibilities of the public water sector (i.e. water and sewerage administrations (WSAs) at metropolitan municipalities and water departments of non-metropolitan municipalities) is to satisfy the demand for water and to ensure that water quality at consumers' taps consistently meets recognized standards.

Water supply from non-conventional water resources like desalinated water and wastewater reuse have not been adopted for large cities and at large scale until recently. One of the prevailing arguments of the central planning administrations is that all the national water resources are not fully developed; therefore, there is still groundwater and surface water that can be exploited[15]. Indeed, water supply via the exploitation of conventional resources is the preferred solution compared to non-conventional resources provided that water is available. Furthermore, the use of conventional water resources has better acceptance than any other non-conventional resources for practical and social reasons. **However, sea water supply has been considered as an alternative since 2010, as shown in Table 11.4, with low but incremental quantities for water supply in arid and coastal regions. Wastewater reuse is increasingly encouraged and introduced in the irrigation of touristic gulf resorts, gardening, and street washing in municipal areas**. Cooling water for industrial supply is also provided through non-conventional resources from the sea, in particular.

The reuse of treated wastewater at home or at municipal level is possible for various levels of quality and in accordance with a number of working plans. Partial recycling inside the buildings comprises flushing water for toilets from re-circulated wastewater that has been treated. This system is recommended to be introduced in newly constructed smart buildings in Istanbul. Some research was carried out in residences in order to work out the conversion of grey water to a flush water source in a student residence hall in Istanbul[16].

Water supply and sanitation services are ensured mainly by two institutions at central level for the whole country. Where water and sewerage administrations are established in metropolitan municipalities, this duty is left to them at municipal level.

[14]Burak and Margat 2016
[15]Burak 2007
[16]Giresunlu and Beler-Baykal 2016

Discussion

Wastewater reuse has been ardently recommended for the Mediterranean countries addressing both ends of the process, supply and demand on the one hand; wastewater disposal and environmental protection on the other[17]. Non-conventional water resources such as reuse of drainage water in agriculture (e.g. four times in Egypt) and widespread use of desalination for municipal use in islands and coastal cities with limited water resources (e.g. Cyprus, Malta, Israel, Tunisia, Spain) are gaining importance in order to meet the demand starting from 21st century[18].

Most importantly, reclaimed water use practices are finding more users as a reliable alternative and low-cost resource in line with improved treatment technologies and standards in parallel with awareness raising campaigns. Drainage water of irrigated agriculture is recycled in water-scarce country like Egypt where this recycle may reach four times. Brine water generated at desalination plants is an issue with regard to the pressure on coastal ecosystem due to high salinity pollution. Malta reported that there is a reduction by halve on brine water production according to new improved techniques on this issue and energy efficiency marked an increase for desalination plant in recent years.

Adaptation to the impoverishment of renewable water resources and to water crisis in the face of expected climate change and climatic disturbances becomes increasingly a priority in national water resource planning of the Mediterranean countries. Following several droughts experienced in the western part of the region, in particular, between 1990 and 2005, demand management started to be applied as a key management issue. Water savings via improvement in water use efficiency with regard to distribution network and progressive water tariff structure and also water savings with regard to water quality with the perspective of optimising water quality according to various uses are the key components of demand management. However, agriculture appears to be the most difficult sector for improving efficiency by metering irrigation water in several countries. Most of the southern and eastern rim developing countries rely on irrigated agriculture, a significant part of the GDP

[17]Lazarova et al. 2001
[18]Burak 2008a

share is generated by the agriculture sector. Therefore, although there has been good progress in irrigation management; for further optimising irrigation water use by reducing wastage and replacing conventional water with manufactured water like treated wastewater reuse, **more progress is still required to face the existing environmental and socio-economic challenges which most of the Mediterranean countries are facing. This will necessitate more efficient WASH management and funding to implement it.**

Assessment of Reuse

A reuse project is dependent on an integrated wastewater network comprising sewerage, wastewater treatment, and the needed infrastructure to use the effluent. Therefore, wastewater treatment plants have to be equipped with process technologies like advance (tertiary) treatment. Additionally, the end-use determines the quality necessitated of the effluent, thus the treatment level. The key issue is the question "which quality of effluent for which reuse"?

Social Acceptance of Reuse Projects

Generally, conventional systems are better accepted culturally and socially with regard to household water use. It is obvious that treated wastewater is not a preferred resource in case other fresh water resources can be made available, like spring water and surface water. However, wastewater reuse is an applied practice in water-scarce regions worldwide, no matter what cultural and religious beliefs are.

Synthesis

Policy Related to Financing Water Supply and Sanitation Services

National Government/Line Ministry or Department responsible for WSS, of Water or in Ministries of Local Government (LG) or Urban/Rural Development

Typical Stakeholders Involved in the Water Supply and Sanitation Sector

Type of institution	Common roles and responsibilities
National government—Ministry of Finance and/or Ministry or Agency responsible for national planning	*Financing of WSS investments*—in many countries, central government provides a major share of the financing of WSS investment projects, either directly from the national budget or as a channel for grants or loans from development partners. *Planning of WSS investments*—in some countries with strong centralized planning institutions, the planning of WSS investments is done at the national level. In other cases, it is only targets which are set (e.g., access targets), with second and third government structures formulating investment plans to meet those targets.
National government—Line Ministry or Department responsible for WSS in Ministry of Water or in Ministries of Local Government (LG) or Urban Rural Development, etc.	*Policy making*—develop policies related to WSS *Technical support*—provide capacity building to LGs *Financing capital investments*—provide capital investments through government budget allocation
LG as service provider	*WSS service provision*—in many countries, LGs are responsible for providing WSS services. In some cases, LGs are allowed to choose how to provide WSS services: by directly providing WSS services through one of the local departments (usually public works or a dedicated WSS department), or by contracting a separate entity (can be private or state owned) to provide the WSS services. *Mayors and councils*—water is often a high profile political issue at the local level, with mayors and elected councils having prominent roles in WSS decision-making. Unelected municipal officials may also be influential.
LG delegating WSS provision	*Contracting agency*—if the LG chooses to contract out WSS services, they will be the contracting agency, which has the responsibility to monitor the performance of the operator and hold the WSP to account in meeting the contract conditions. *Asset owners*—in many cases, the LG is the owner of the WSS assets. Depending on the contract provisions, the LG may or may not be responsible for investment and asset -maintenance.

Coordination of WASH Sector

In WASH sector, inland water resources, emission (discharges) of wastewater and tap water (all public health related water quality issues) are regulated by different institutions, in general (e.g. Turkey). **Therefore, close and efficient coordination must be ensured between these three WASH sectors. Coordination committees may be established for better coordination.**

Capacity is another important issue: Institutions can be as efficient as its management and the skills of the staff working for it. Therefore, horizontal institutional capacity building would be required.

O&M facilities are at the utmost importance:

For instance, training of O&M staff is a major issue for two main reasons in developing countries of the Mediterranean region. First, appropriate and efficient O&M is crucial for sanitation services with emphasis on wastewater treatment. But the needed finance with respect to training and operation expenditure is not allocated in due time due to higher salaries for dedicated staff and reluctance to work wastewater operation facilities and energy cost which is high for secondary and advanced treatment in particular.

The implicit regional assumption that WASH institutions can be improved when other development sectors operate with business as usual approaches cannot be a viable option. Therefore, unilateral improvement will be needed.

As short term proposals: Peer-to-peer approach has been practiced by IME through its members divided in 4 categories performing all in the WASH sector. As the SEMC, in particular, are confronted with the most difficult cases of water management in the face of water scarcity, climate irregularities, increasing pressure due to immigration pressure, jeopardizing water and food security, their experience addressing these concerns are very valuable to be exchanged between them and to be reported to the regional/international organizations and networks for replicability.

Emergency Plans Policy

Supply chain for imported chemical reagents and spare parts to be used in water treatment plants, mainly in order to provide an uninterrupted public service is essential. Because during pandemics, customs may close to international trade and this is likely to jeopardize supply chain that may short fall. This issue is crucial for WASH.

Support to water supply and sanitation (WSS) service providers to prepare emergency plans and ensure continuity of service delivery through inter alia: provision of water treatment chemicals and spare parts, availability of fuel for pumps and treatment, maintaining staffing levels, providing protective equipment for utility staff and salary supplements to compensate for the additional work-loads.

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IV - Annex 2 : Country statistics

WASH with figures in selected countries

Table 1 WASH Data in Selected Countries

EGYPT		
Total population (1000 inhab)	97553	2017
Rural population (1000 inhab)	59727	2017
Urban population (1000 inhab)	37826	2017
Population density (inhab/km2)	97.41	2017
Agricultural water withdrawal (10^9 m3/year)	61.35	2017
Industrial water withdrawal (10^9 m3/year)	5.4	2017
Municipal water withdrawal (10^9 m3/year)	10.75	2017
Total water withdrawal (10^9 m3/year)	77.5	2017
Irrigation water withdrawal (10^9 m3/year)		
Irrigation water requirement (10^9 m3/year)	45.11	2002
Agricultural water withdrawal as % of total water withdrawal (%)	79.16	2017
Industrial water withdrawal as % of total water withdrawal (%)	6.968	2017
Municipal water withdrawal as % of total withdrawal (%)	13.87	2017
Total water withdrawal per capita (m3/inhab/year)	794.4	2017
Environmental Flow Requirements (10^9 m3/year)	2.6	2017
Fresh surface water withdrawal (10^9 m3/year)		
Fresh groundwater withdrawal (10^9 m3/year)	6.5	2017
Total freshwater withdrawal (10^9 m3/year)	64.4	2017
Desalinated water produced (10^9 m3/year)	0.2	2010
Direct use of treated municipal wastewater (10^9 m3/year)	1.2	2016
Direct use of agricultural drainage water (10^9 m3/year)	11.9	2016

Produced municipal wastewater (10^9 m3/year)	7.078	2012
Collected municipal wastewater (10^9 m3/year)	6.497	2012
Treated municipal wastewater (10^9 m3/year)	4.282	2017
Number of municipal wastewater treatment facilities (-)	382	2014
Capacity of the municipal wastewater treatment facilities (10^9 m3/year)	4.745	2014
Not treated municipal wastewater (10^9 m3/year)	3.065	2012
Treated municipal wastewater discharged (10^9 m3/year)	3.011	2012
Not treated municipal wastewater discharged (10^9 m3/year)	1	2001
Direct use of treated municipal wastewater (10^9 m3/year)	1.2	2016
Direct use of treated municipal wastewater for irrigation purposes (10^9 m3/year)	0.29	2011
Direct use of not treated municipal wastewater for irrigation purposes (10^9 m3/year)		
Area equipped for irrigation by direct use of treated municipal wastewater (1000 ha)	35.5	2010
Area equipped for irrigation by direct use of not treated municipal wastewater (1000 ha)		
MDG 7.5. Freshwater withdrawal as % of total renewable water resources (%)	112	2017
Agricultural water withdrawal as % of total renewable water resources (%)	106.7	2017
SDG 6.4.2. Water Stress (%)	117.3K	2017
Population affected by water related disease (1000 inhab)		

MALTA		
Total population (1000 inhab)	430.8	2017
Rural population (1000 inhab)	16.4	2017
Urban population (1000 inhab)	414.4	2017
Agricultural water withdrawal (10^9 m3/year)	0.0254	2017
Industrial water withdrawal (10^9 m3/year)	0.001	2017
Municipal water withdrawal (10^9 m3/year)	0.0374	2017
Total water withdrawal (10^9 m3/year)	0.0638	2017
Irrigation water withdrawal (10^9 m3/year)	0.0254	2017
Irrigation water requirement (10^9 m3/year)	0.012	2017
Agricultural water withdrawal as % of total water withdrawal (%)	39.81	2017
Industrial water withdrawal as % of total water withdrawal (%)	1.567	2017
Municipal water withdrawal as % of total withdrawal (%)	58.62	2017
Total water withdrawal per capita (m3/inhab/year)	148.1	2017
Environmental Flow Requirements (10^9 m3/year),		
Fresh surface water withdrawal (10^9 m3/year)	0.0026	2017
Fresh groundwater withdrawal (10^9 m3/year)	0.0403	2017
Total freshwater withdrawal (10^9 m3/year)	0.043	2017
Desalinated water produced (10^9 m3/year)	0.0202	2017
Direct use of treated municipal wastewater (10^9 m3/year)	0.0006	2017
Direct use of agricultural drainage water (10^9 m3/year),		
Produced municipal wastewater (10^9 m3/year)	0.0233	2017
Collected municipal wastewater (10^9 m3/year),	0.0233	2017
Treated municipal wastewater (10^9 m3/year)	0.0233	2017

Number of municipal wastewater treatment facilities	4	2013
Capacity of the municipal wastewater treatment facilities (10^9 m3/year),		
Not treated municipal wastewater (10^9 m3/year),		
Treated municipal wastewater discharged (10^9 m3/year)	0	1993
Not treated municipal wastewater discharged (10^9 m3/year),		
Direct use of treated municipal wastewater (10^9 m3/year)	0.0006	2017
Direct use of treated municipal wastewater for irrigation purposes (10^9 m3/year),		
Direct use of not treated municipal wastewater for irrigation purposes (10^9 m3/year),		
Area equipped for irrigation by direct use of treated municipal wastewater (1000 ha)	0.28	1990
Area equipped for irrigation by direct use of not treated municipal wastewater (1000 ha),		
MDG 7.5. Freshwater withdrawal as % of total renewable water resources (%)	85.15	2017
Agricultural water withdrawal as % of total renewable water resources (%)	50.3	2017
SDG 6.4.2. Water Stress (%)	85.15	2017
Total population with access to safe drinking-water (JMP) (%)	100	2015
Rural population with access to safe drinking-water (JMP) (%)	100	2015
Urban population with access to safe drinking-water (JMP) (%)	100	2015
Population affected by water related disease (1000 inhab),		

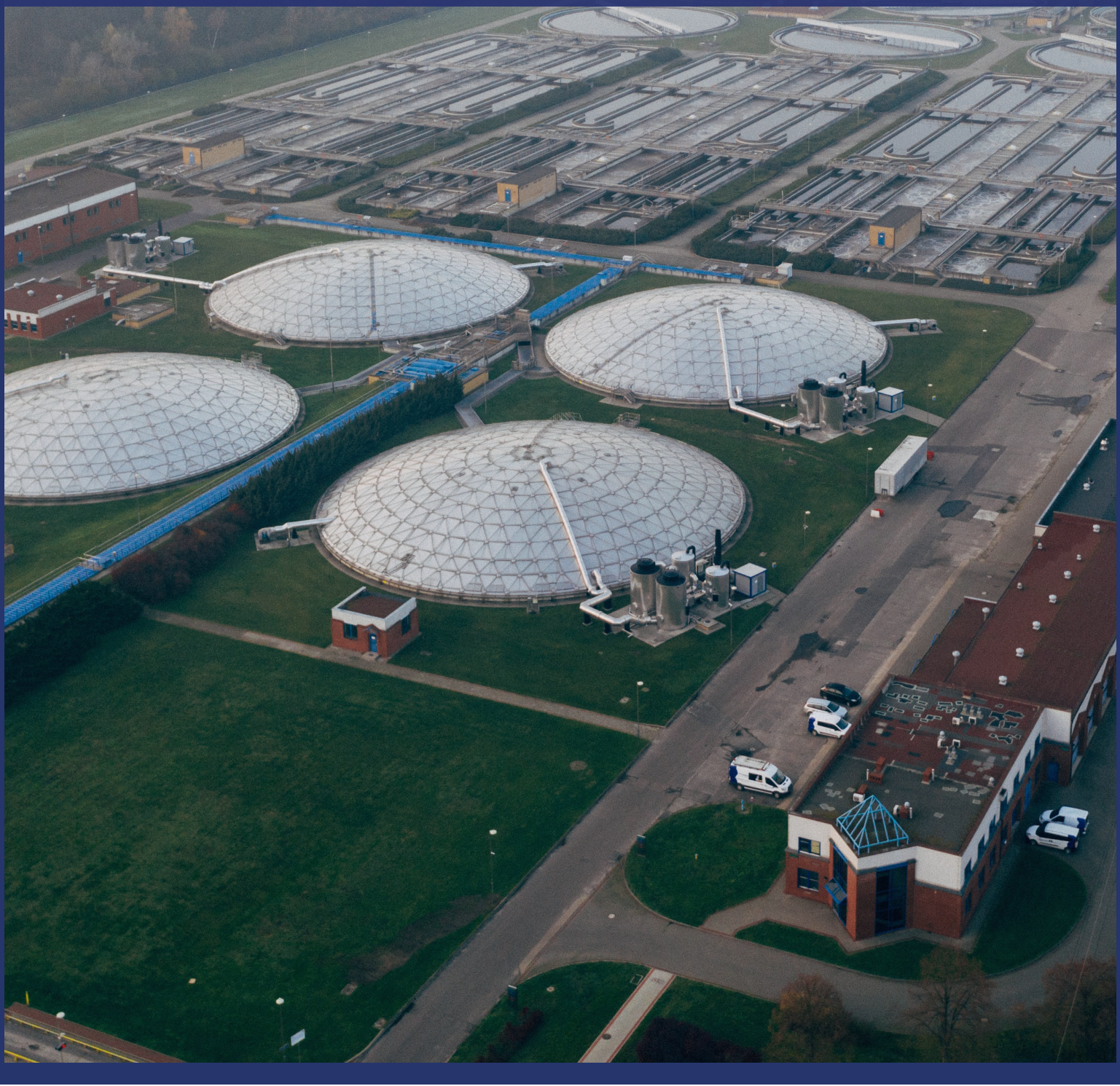
TUNISIA		
Total population (1000 inhab)	11532	2017
Rural population (1000 inhab)	3821	2017
Urban population (1000 inhab)	7711	2017
Agricultural water withdrawal (10^9 m3/year)	3.773	2017
Industrial water withdrawal (10^9 m3/year)	0.965	2017
Municipal water withdrawal (10^9 m3/year)	0.137	2017
Total water withdrawal (10^9 m3/year)	4.875	2017
Irrigation water withdrawal (10^9 m3/year),		
Irrigation water requirement (10^9 m3/year)	1.552	2000
Agricultural water withdrawal as % of total water withdrawal (%)	77.39	2017
Industrial water withdrawal as % of total water withdrawal (%)	19.79	2017
Municipal water withdrawal as % of total withdrawal (%)	2.81	2017
Total water withdrawal per capita (m3/inhab/year)	422.7	2017
Environmental Flow Requirements (10^9 m3/year)	0.6767	2017
Fresh surface water withdrawal (10^9 m3/year)	1.151	2011
Fresh groundwater withdrawal (10^9 m3/year)	2.066K	2011
Total freshwater withdrawal (10^9 m3/year)	4.768	2017
Desalinated water produced (10^9 m3/year)	0.055	2017
Direct use of treated municipal wastewater (10^9 m3/year)	0.042	2017
Direct use of agricultural drainage water (10^9 m3/year)	0.01	2017
Produced municipal wastewater (10^9 m3/year)	0.287	2009
Collected municipal wastewater (10^9 m3/year)	0.241	2009
Treated municipal wastewater (10^9 m3/year)	0.226	2010
Number of municipal wastewater treatment facilities (-)	109	2010

Capacity of the municipal wastewater treatment facilities (10^9 m3/year)	0.238	2010
Not treated municipal wastewater (10^9 m3/year)	0.063	2009
Treated municipal wastewater discharged (10^9 m3/year)	0.158	2010
Not treated municipal wastewater discharged (10^9 m3/year)	0.1	2001
Direct use of treated municipal wastewater (10^9 m3/year)	0.042	2017
Direct use of treated municipal wastewater for irrigation purposes (10^9 m3/year)	0.067	2009
Direct use of not treated municipal wastewater for irrigation purposes (10^9 m3/year)	0.0466	2008
Area equipped for irrigation by direct use of treated municipal wastewater (1000 ha)	9.5	2010
Area equipped for irrigation by direct use of not treated municipal wastewater (1000 ha),		
MDG 7.5. Freshwater withdrawal as % of total renewable water resources (%)	103.3	2017
Agricultural water withdrawal as % of total renewable water resources (%)	81.76	2017
SDG 6.4.2. Water Stress (%)	121.1	2017
Total population with access to safe drinking-water (JMP) (%)	97.7	2015
Rural population with access to safe drinking-water (JMP) (%)	93.2	2015
Urban population with access to safe drinking-water (JMP) (%)	100	2015
Population affected by water related disease (1000 inhab)		

TURKEY		
Total population (1000 inhab)	80745	2017
Rural population (1000 inhab)	22572	2017
Urban population (1000 inhab)	58173	2017
Agricultural water withdrawal (10^9 m3/year)	50.05	2017
Industrial water withdrawal (10^9 m3/year)	2.898	2017
Municipal water withdrawal (10^9 m3/year)	5.839	2016
Total water withdrawal (10^9 m3/year)	58.79	2017
Irrigation water withdrawal (10^9 m3/year)	42.21	2017
Irrigation water requirement (10^9 m3/year)	25.14	2004
Agricultural water withdrawal as % of total water withdrawal (%)	85.13	2017
Industrial water withdrawal as % of total water withdrawal (%)	4.929	2017
Municipal water withdrawal as % of total withdrawal (%)	9.932	2017
Total water withdrawal per capita (m3/inhab/year)	728.1	2017
Environmental Flow Requirements (10^9 m3/year)	76.97	2017
Fresh surface water withdrawal (10^9 m3/year)	44.55	2016
Fresh groundwater withdrawal (10^9 m3/year)	15.46	2017
Total freshwater withdrawal (10^9 m3/year)	58.76	2017
Desalinated water produced (10^9 m3/year)	0.0082	2016
Direct use of treated municipal wastewater (10^9 m3/year)	0.025	2016
Direct use of agricultural drainage water (10^9 m3/year),		
Produced municipal wastewater (10^9 m3/year)	4.499	2016
Collected municipal wastewater (10^9 m3/year),		
Treated municipal wastewater (10^9 m3/year)	3.842	2016

Number of municipal wastewater treatment facilities (-)	604	2014
Capacity of the municipal wastewater treatment facilities (10^9 m3/year)	5.289	2010
Not treated municipal wastewater (10^9 m3/year)	0.814	2014
Treated municipal wastewater discharged (10^9 m3/year)	1.591	2004
Not treated municipal wastewater discharged (10^9 m3/year),		
Direct use of treated municipal wastewater (10^9 m3/year)	0.025	2016
Direct use of treated municipal wastewater for irrigation purposes (10^9 m3/year),		
Direct use of not treated municipal wastewater for irrigation purposes (10^9 m3/year),		
Area equipped for irrigation by direct use of treated municipal wastewater (1000 ha)	9.16	2004
Area equipped for irrigation by direct use of not treated municipal wastewater (1000 ha)	9.16	2004
MDG 7.5. Freshwater withdrawal as % of total renewable water resources (%)	27.77	2017
Agricultural water withdrawal as % of total renewable water resources (%)	23.65	2017
SDG 6.4.2. Water Stress (%)	43.65	2017
Total population with access to safe drinking-water (JMP) (%)	100	2015
Rural population with access to safe drinking-water (JMP) (%)	100	2015
Urban population with access to safe drinking-water (JMP) (%)	100	2015
Population affected by water related disease (1000 inhab)		

V - Methodology of identification of emergent labeled projects related to WASH



V - Methodology of identification of emergent labeled projects related to WASH

Drafted by Guy Fleuret, International Expert,with the support of IME

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Acronyms List

EC: European Commission

IME: Institut Méditerranéen de l'Eau

UfM : Union for Mediterranean

WASH: Water, Sanitation, Hygiene

WHO: World Health Organization

Introduction

The policy brief has offered an innovative approach because WASH is a multi-dimensional sector that cannot be limited to techniques of measuring the presence of the virus[1] which embraces broader problems, that WHO considers strategic, in this case sanitation[2].

As recommended by WHO, the policy brief encourages stakeholders to adopt innovative and push strategies, where the regional level can fully play its role.

In order to achieve this, we cannot only play at the global policy level. It is also necessary to demonstrate through concrete projects/initiatives that it is possible; hence the importance of flagship projects. The flagship projects constitute the potential breeding ground for future projects eligible for the UfM. They will be mainly carried by the networks of territories, like AVITEM or MedCities (eg ValEUR Water-recovery Gabès) and European programs centered on pilot territories (Covenant of Mayors) and/or demonstrative projects, like "Life program" (eg "Bamboo for life"), Water Environment Support program.

Discussions will have to be held with these various interlocutors to identify projects potentially eligible for the label and meeting the defined criteria of eligibility.

To do this, it is necessary from examples to have a robust, applicable identification methodology, because it falls under a shared consensus between stakeholders.

This methodology is not a "closed" methodology. It is based on logical criteria, which allow a preliminary approach like a "pre-due diligence", very useful for potential funding.

The webinars organized by IME, as part of this work, allowed, using concrete examples, to share this open but robust approach.

[1]Very interesting scientific initiatives are experimented which could develop very effective predictions for the health management of Covid-19.
[2]Call to transform sanitation for better health WHO 2020.

1 - Defining a flagship project

Three questions.

- What is a flagship project?

Globally, it's a project/initiative / program that could have a regional dimension, like developed at the regional level by replication or with a regional impact.

- What type of projects?

Pilot projects: projects in which a technique or a method is new and can be tested on a larger scale.

Demonstrative projects: projects which put into practice, experiment, evaluate and disseminate new methods or approaches than can be applied elsewhere.

Projects using best practices: projects which apply techniques, methods and approaches cost effective.

- What mean flagship projects/initiatives?

Flagship projects/initiatives are intented to lead to the fulfilment of strategic priorities defined in national and regional policies and plans related (completely or partially) to WASH. Because of the focus on sanitation and non-conventional water treatment (one component of WASH), also of time allotted and the constraints related to the COVID-19 (in terms of missions abroad), the WASH components will be in fact integrated in broader integrate water management plans.

A flagship project/initiative is healthy and environmentally relevant. This incorporates regional aspects, by stimulating regional outcomes attributed to replication of innovations, new technologies cross border and innovative approaches related to inclusivity, integrate water management plans. Potentially, actively engages stakeholders, including IFIs, donors, EC programs and local authorities.

Accordingly, flagship projects/initiatives could be viewed as platforms for broader inter-sectorial and cross-border programs to be implemented in the future. Flagship projects could be core-projects/initiatives around which comprehensive and strategic programs will be developed. They are the incubators for the achievement of the SDGs 3 and 6 and constitute an opportunity for healthy living.

2 - Methodology for a preliminary identification process

The identification is based on the definition of eligibility criteria that constitutes the preliminary phase of a selection of flagship projects/initiatives.

2.1 - Eligibility criteria

The eligibility criteria represents what the institutions that will consider the regional interest of the project (including potential funders, if necessary) have to identify and "put on the table", to give prior notice to any operational validation.

Five main eligibility criteria are highlighted.

- **Social sustainability and economic efficiency**

The global goal is to check if the project reflects wider benefits and costs effective to WASH and to assess it's viability capacity to meet WASH's needs, well as its economic relevance of cost/benefit.
The compliance with the WASH strategic objectives and the quality of governance remain key factors.

Of course, this presupposes in any case:

- Commitment of project owners
- Legal soundness of the project.
- Alignment with the WASH public policy.
- Financial plan soundness, that sustained the project in a time to be determined.
- Sustain ability plan, that include Funds for operation & maintenance (in the case of investment project) and technical teams (in any case) available for management.

- Soundness

The flagship projects involve stakeholders and local communities (if it's relevant). Activities are properly listed.
It may include:

- Sequencing and timing.
- Attributing general responsibilities of the entities in charge
- Establishing a monitoring and evaluation process.
- Commitment of community representative (eg civil society, NGO, municipal council,...).
- Availability of Community awareness plan and communication plan related to the project.

The activities must be coherently articulated: coherence with the WASH components and other sectors which contributes to health care.

- Financial viability

The global goal is to ensure that the financial requirement applicable is sustainable. To do this:

- The link between planning, costing and budgeting must be structured. A weak link has negative consequences: resources are not used as intended and accountability is weakened.
- The alignment of WASH planning and public budgeting (when it is a public project), that allows an operational implementation (definition of operational objectives).
- The flagship project must be able to be multi-years financially sustainable. External resources have to be additional, not a conditionality to sustain the project.

- Innovative dimension

The "business models" of WASH investment cases are not stabilised, when we want to promote alternative pathways, especially in sanitation, waste water treatment and reuse. This is due to the complexity of this type of investment and/or its sizing, unattractive for potential financiers.

On the other hand, because of the COVID-19 context, the digitalization for achieving the objectives of WASH is key. However the technology must be contextualised and applicable.

The alternative investment approaches (non-conventional water treatments, reuse,...) must be highlighted.

It exists also other alternatives that highlight innovative approaches, in term of social governance for example.

- **Replicability**

The project is either a regional initiative or a project that would be adaptable in other national contexts (we know that investment cases in this domain are strongly depending from national regulations, d'or frequently the failure of demonstrators).

Build devices for joint-monitoring and inter-states capacity building activities are key.

A "replicability method and steps" will be established (replicability mechanism), that defines adherence of actors.

The strong relationship with regional organization could be relevant.

2.2 - Key factors for successful implementation

• Even though flagship projects are conceived to fulfil specific criteria intended to ensure successful project implementation, often a project faces unforeseen risks that can jeopardize its flagship status. That is the reason why it is recommended to prioritize "mature" projects/initiatives , that can have passed the first stages of the implementation, in view of the labeling of UfM.

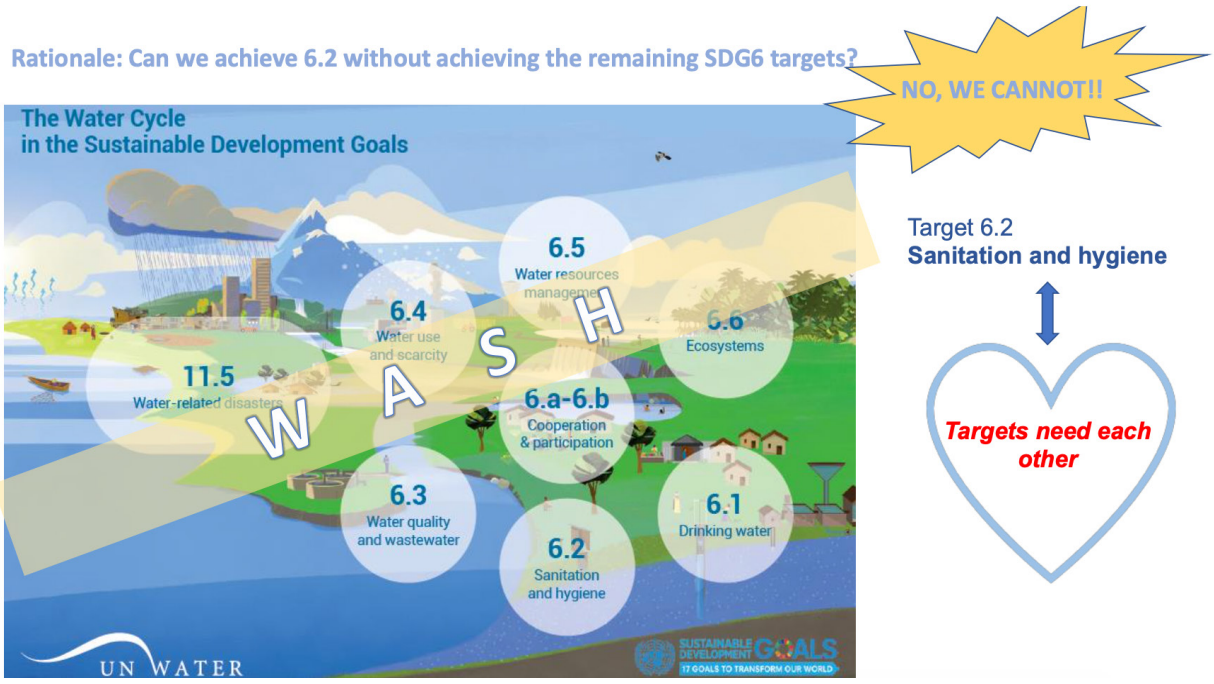
• Potential risks have to be incorporated into prioritization categories of flagship projects:

- Project is not a priority in national or sectorial government plans.
- Project never dealt with potential donors , IFI's or EC programs.
- There will be delays in receiving allocated funds for timely implementation.
- The public and other stakeholders are opposed to the project.
- Applicable laws for project implementation result in an increase in cost of implementation.
- Different economic interest may postpone project implementation.

3 - Some potential flagship projects/initiatives

• Following the IME webinar of December 15th, three projects seem to present an interest that will of course need to be deepened, because relevant in sanitation/ wastewater treatment and reuse, integrate the WASH dimension (more or less directly or indirectly) and corresponding to the eligibility criteria and mature.

• **Initiative/program: "An approach to sanitation wastewater treatment and water reuse after COVID-19"** (Spain/Ministry for Ecological transition and Demographic challenge- General Directorate of Water)



The objective is to improve water quality standards for environmental and human health protection, through new types of sanitation and waste water infrastructures.

The initiative promotes in different Spanish regions water reuse like a source of water balance resources and a measure for efficient use. It will integrate safe reuse in basin management plans.

The program consists in:

- Technical guidelines.
- Identification of regulatory barriers.
- Development of experimental plants.
- Design of a funding approach to expand in the entire country.

The specific contribution to the COVID-19 is the detection of waste treatment system with weekly publication.

This initiative is typically a flagship project which associates using replicable best practices and pilot investment projects.

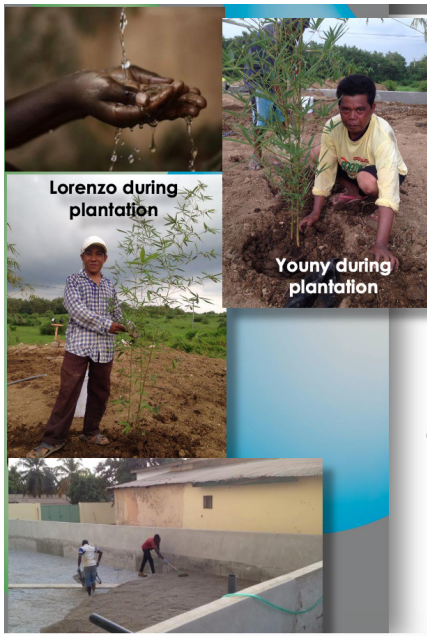
• **Investment project: "Bamboo for life"** (France/Start-up)

The objective is to create innovative waste-water plants using bamboo-sanitation, by phyto-remediation.

This project can provide waste water and sanitation to everyone and everywhere. It decreases carbon foot print, reduces fossil needs by urge quantity of renewable biomass and depollutes the soils. This industrial project is very cost-effective.

It is potentially a very strong impact on health environment in Low Income Countries.

This industrial project is typically a pilot flagship project with a strong replicability. EC Life Program finances the pilot phase.



• **City strategy project : "ValEUr-Water recovery-Gabes"**(Tunisia/ Municipality of Gabes, with the support of MedCities)

ValEUr Gabès:
VALorisation de l'Eau URbain à travers des actions et instruments innovateurs

The local authorities make the observation that the waste water treatment plants are inadequate and have identified the opportunity to implement non-conventional water resources management.

The objectives are:

- Foster the capacity of Tunisian cities to face the impact of climate change and thus improve the health environment.
- Promote non-conventional water in the urban plans.

The first step of this initiative is a capacity building program focused on:

- The planning of non-conventional water plants in urban strategy
- The implementation of GIS System (geographic knowledge tool)
- Training of the staff members.

This initiative, based on non-conventional water management could be admissible because of its strong climate change impact. It's a typical project which promotes best practices and aims to be replicable in Tunisia and some of the Mediterranean cities.

Conclusion

This methodology is a milestone. It must be shared with the policy makers, the partners and the EC programs potentially stakeholders, like Life program, “Water Environment Support”program or Covenant of Mayors Med program. The examples must be deepened but they demonstrate that this methodology is relevant.

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط