
**Proposal for a Capacity Development and Knowledge Transfer Program
on Water for the Western Mediterranean**

Water Strategy in the Western Mediterranean (5+5 Dialogue)

DRAFT VERSION





5+5 Water Strategy in the Western Mediterranean Implementation of the Action Plan Capacity Development Programme

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1. Introduction and background

This proposal for a “Capacity Development and Knowledge Transfer Programme on Water for the Western Mediterranean” presents a draft for the elaboration and implementation of a capacity building and knowledge transfer Programme on water in the Western Mediterranean, in response to the mandate given by the Ministers at their meeting on 10th March 2022, in the framework of the Water Strategy in the Western Mediterranean (WSWM) of the 5+5 Dialogue ¹².

The proposal, which responds to the axes established in the WSWM Action Plan and its terms of reference, proposes a governance model which was long discussed at the meeting of the Working Group (WG) of the 5+5 Dialogue on 22nd September 2022, together with a first Work Plan 2023-2024 annexed to the Programme.

1.1 Water Strategy in the Western Mediterranean and Action Plan

On 31st March 2015, during the first Ministerial Conference on Water (5+5), the Water Strategy in the Western Mediterranean (WSWM) was adopted, with the aim of preventing conflict, boosting development and contribute to guaranteeing the human right to water and sanitation in the Region.

The adopted Strategy was the result of the consensus of the 10 Western Mediterranean Countries within the 5+5 Dialogue (France, Italy, Malta, Portugal and Spain in the northern part, and Algeria, Libya, Mauritania, Morocco and Tunisia in the southern part), including the contributions from the European Union, the Union for the Mediterranean (UfM), the Union for the Arab Maghreb (UAM), and other observers.

The countries, organizations and regional organizations involved in this process identified 13 priority themes, grouped into three thematic blocks, which address cross-cutting themes, objectives of regional interest and technical issues to improve water management in the Region. Following the Strategy, we set out below the corresponding priorities grouped into their respective thematic blocks.

B1 Improve the convergence of countries towards a sustainable water policy.	B2 Promotion of cooperation in matters of regional interest.	B3 Promotion of improved water management.
1. Develop and implement clearly defined legal frameworks. 2. Establish governance adapted to integrated water management 3. Implement cost recovery	4. Capacity building 5. Development of innovation in the water sector. 6. Water-energy-food nexus 7. Decontamination of the Mediterranean 8. Mobilize innovative financial solutions related to water.	9. Adaptation to climate change 10. Increase and mobilize available resources 11. Improving water use efficiency 12. Flood prevention 13. Protection of water quality and biodiversity

¹ https://MENBO.org/wswm/Action_Plan_EndorsedVersion_ENG.pdf

² https://MENBO.org/wswm/Rules_of_procedure__EN_endorsed.pdf

The WSWM clearly identifies the promotion of capacity development and exchange of experiences as one of the cornerstones of progress in the Mediterranean Region. Indeed, its relevance enshrined, mainly, in its Priority number 4 – Capacity Development – constitutes one of the main pillars of the Strategy and a cross-cutting priority, ancillary to all the others.

1.2 The United Nations' Capacity Development Initiative for SDG 6 - Water

In the framework of the UN, within the High-Level Political Forum on Sustainable Development, Member States regularly report on their progress towards achieving the Sustainable Development Goals (SDGs), including SDG6: "Ensure the availability and sustainable management of water and sanitation for all by 2030".

Overall, the latest reports indicate that action to achieve the Sustainable Development Goals is not advancing at the necessary speed or scale. Many countries have highlighted their difficulties in implementing and achieving SDG6 due to a lack of institutional, human, financial and technological capacity. Yet, insufficient resources in these critical areas are detrimental to the development of the water sector and to the achievement of sustainable water and sanitation management for all.

To rectify this, in July 2020, the High-Level Political Forum launched the SDG 6 Global Acceleration Framework, with the aim of accelerating progress towards achieving SDG6, through the deployment of actions in five components or accelerators: financing, data and information, capacity building, innovation and governance¹.

Against this background, UN - Water has mandated UNESCO and UNDESA to promote and coordinate a Capacity Development Initiative, as a central component to address gaps in the Execution of the water and sanitation-related goals and targets of the 2030 Agenda for Sustainable Development. In line with the United Nations Decade of Action and the SDG 6 Global Acceleration Framework, the Initiative aims to support national governments in their efforts to strengthen their capacity to achieve SDG 6 and the related Goals.

The Capacity Development Initiative will help countries identify their capacity gaps in the water and sanitation sector and work with national governments to improve their capacity and make concrete commitments to support the execution of SDG 6 and related targets.

In sum, the Initiative aims to:

1. Support countries to identify their capacity gaps in the water and sanitation sector and work with national governments and other relevant partners to close those gaps and support the Execution of SDG 6.
2. Help countries develop their human and institutional capacities in an integrated manner to enable a more effective implementation of SDG 6 in line with the 2030 Agenda. The Initiative applies a cross-sectoral approach to addressing water and sanitation issues at the national level, in order to improve the establishment of integrated and coherent policies and decisions.

¹ <https://www.unwater.org/un-water-launch-the-sdg-6-global-acceleration-framework/>



3. Raise awareness of the critical role that water and sanitation play in sustainable development, in particular the implementation of the 2030 Agenda and the benefits to many other key stakeholders, such as civil society, academia and business.
4. Coordinate existing capacity building initiatives of UN Members and Partners and make them available to Member States when they need them.

Successful implementation of the Capacity Building Initiative will enable accelerated progress towards the achievement of SDG 6, including the interlinkages between SDG 6 and other SDGs, greater cooperation and integration of water and sanitation with other thematic areas in national development agendas, as well as better monitoring and reporting on SDG 6.

2. Capacity Development and Knowledge Transfer Programme on Water for the Western Mediterranean

The proposed “Capacity Development and Knowledge Transfer Programme on Water for the Western Mediterranean” (the Programme, hereinafter) states a procedure for the Working Group members of the 5+5 Dialogue to identify and select activities that are of interest for their execution within the framework of the WSWM.

2.1 Guiding Principles

The basis of the Programme is to match the capacity development demands of the Western Mediterranean countries with potential suppliers, regional or not (universities, research centres, sectoral organizations or qualified professionals).

Such a mechanism should be based on the following guiding principles:

- Work in coordination with the **regional action** of relevant institutions, taking into account the results of other Programmes, either regional (UPM, EUWI+, PRIMA...) or global (UNESCO-IHP, UNEP, FAO, UN Water SDG 6 Capacity Development Initiative)
- All the courses organised in the framework of the Programme will be open for participation to at least all the countries member of the 5+5, whilst, depending on the financial circumstances, other countries could be invited in certain cases.
- Define a biennial Work Plan, identifying and defining all the actions to be developed in that timespan. Progress in the execution of the Work Plan will be reported regularly to the Working Group (WG), who may adapt it accordingly.
- Act in coordination with MENBO, as the WSWM Secretariat, regarding the definition of activities, the assessment of results, and the reporting to the Conference of Water Ministers of the 5+5 Dialogue.

2.2. Themes

The Mediterranean Capacity Development Programme is established on the following lines of action:



Lines of Action	Strategic Priorities
Water governance	<ul style="list-style-type: none"> Develop and implement clearly defined legal frameworks. Establish a governance adapted to integrated water management Implement cost recovery Development of innovation in the water sector. Mobilize innovative financial solutions related to water.
Non-conventional water resources	<ul style="list-style-type: none"> Development of innovation in the water sector. Increase and mobilize available resources. Improve the efficiency of water use.
Digitalisation of the water sector	<ul style="list-style-type: none"> Development of innovation in the water sector. Adaptation to climate change Increase and mobilize available resources Improved water use efficiency Flood prevention Protection of water quality and biodiversity
Environmental issues	<ul style="list-style-type: none"> Decontamination of the Mediterranean Protection of water quality and biodiversity
Climate change	<ul style="list-style-type: none"> Adaptation to climate change Flood prevention Protection of water quality and biodiversity
Water-Energy-Food-Ecosystems Nexus – IWRM	<ul style="list-style-type: none"> Develop and implement clearly defined legal frameworks. Establish a governance adapted to integrated water management Water-energy-food nexus Decontamination of the Mediterranean Improving the efficiency of water use

2.3 List of proposed Courses

The following list of courses incorporates all the proposals discussed during the 9th Working Group (WG) meeting held on 10th March 2022. Alongside the proposals, we indicate the promoting country/representative that made or supported the proposal.

N°	Course ¹ <i>Promoter</i>
WATER GOVERNANCE	
1	Governance Frameworks for regulating the allocation of Water Resources
2	Cross-border management of water resources
3	Water demand management: leakage management and metering <i>IME and other members</i>

¹ **Note:** Main priority areas defined in the 5+5 Water Strategy for the Western Mediterranean - WSWM



N°	Course ¹ Promoter
4	Water Governance and fight against corruption <i>European Commission and Tunisia</i>
NON-CONVENTIONAL WATER RESOURCES (Green circular Economy)	
5	Wastewater reuse (agriculture, urban, stakeholders' concerns)
6	Desalination of seawater and brackish water: legal, technical and institutional aspects <i>Malta</i>
DIGITALISATION OF THE WATER SECTOR	
7	Water management and use: Mediterranean Water Knowledge Platform
8	Monitoring networks and sampling techniques for water quality and quantity: surface and groundwater
ENVIRONMENTAL ISSUES	
9	Wetland Restoration
10	Nature-based solutions and eco-hydrology: flood mitigation and urban regeneration
11	Erosion and river sediment transport, social and environmental implications
12	Wastewater treatment technologies and discharge regulations: circular treatments
13	Environmental impact of desalination and reuse: circular economy <i>Proposed by Tunisia</i>
14	Emerging Pollutants <i>Proposed by the European Commission</i>
CLIMATE CHANGE	
15	Adaptation strategies in the face of climate change and extreme weather events
16	Scenario modelling for surface and groundwater on the impacts of climate change
WATER-ENERGY-FOOD-ECOSYSTEMS Nexus – IWRM	
17	IWRM and water planning
18	Management of WEF Nexus (Water-Energy-Food) <i>Algeria</i>
19	Management of Nexus Water Climate change – Migration <i>Tunisia</i>

A detailed description of the above courses is available in Annexe I.

2.4. Work Plan 2023-2024

The 2023-2024 preliminary Work Plan was outlined by the current Working Group Presidency (Spain) supported by the MENBO Secretariat.

This Work Plan is aligned with Priority 4 of the WSWM: Capacity building, whose objective is to enhance the capacities of qualified professionals and civil servants from the Western Mediterranean Region on water issues.

According to the outcome of the 10th WG meeting of 22nd September 2022, the following courses have been planned for the period 2023-2024:



N°	Course	Organiser	Sponsor	Date
1	Operation and Management of Desalination Plants	EWA - MALTA		2023
2	Joint management of surface and groundwater resources in coastal areas	MENBO	UNESCO	17-19 May 2023
3	NEXUS Water-Energy	EWA - MALTA		2024
4	Groundwater Monitoring	SPAIN	AECID CEDEX	2023
5	Course from CIHEAM Master (tbc)	CIHEAM/ MENBO		2023

In order to follow a harmonised approach, the 2023 – 2024 Work Plan assumes the following commitments:

- The courses **will be open to professionals from any countries or organizations relevant to this Programme**. Members may request closed editions of the courses for stakeholder's representatives.
- **Hybrid learning will be encouraged whenever possible**, although online courses or on site courses may be scheduled.
- **Courses will be issued in the official languages of the Western Mediterranean Dialogue: English or French**. Other languages may be added if proposed by the organizers.
- The Action Plan **encourages the involvement of academic institutions to enable:**
 - Issuance of a certificate and/or diploma for participants to Programme's activities.
 - Merit recognition for attending participants.
 -

2.5 Organizational framework

To ensure compliance with the above principles, it is necessary to establish an organizational framework that allows the identification, organization and implementation of the Work Plan. For such tasks, the following framework for the definition, implementation and monitoring, is considered.

2.5.1 Decision organs

- The **Working Group (WG)**, which defines, approves and monitors the Work Plan, as well as identifies the centers of excellence, strategic partners and formalizes the appointment of the Steering Group.
- The **Steering Group (SG)**, composed of the Secretariat, the Union for the Mediterranean Water Expert Group (WEG) representative, an UNESCO representative, and up to four elected member countries for a two year mandate. Appointment to the Steering Group will be carried out on a voluntary basis.



The Steering Group will assume the following tasks:

- Assess, with the support of the Secretariat, the capacity development needs of the member countries and elaborate and monitor the Work Plan (modalities, venues, allocation of resources, ... for each activity), taking into account the capacity development and funding sources offered by relevant actors (members or strategic partners).
- Communicate any capacity development initiatives agreed by the Working Group (WG) to the UN Water Capacity Development Inventory Initiative.
- Elevate to the Working Group (WG), the candidacies from new institutions or actors, for their approval.
- Review and monitor the implementation of the Work Plan by means of activity progress reports drawn up by the Secretariat, and elevate them to the working Group for ratification.

2.5.2 Support structure

- The **Secretariat**, currently held by MENBO¹, shall be entrusted with the tasks of supporting the review, the implementation and the monitoring of the Work Plan, the dissemination and visibility of its results, and report to the Working Group (WG). It should also actively contribute to fund raising activities to finance the planned activities.

2.5.3 Other relevant actors

- **Strategic partners**, which can be other governments (e.g. through their cooperation programmes) or institutions that offer their capacities to improve the full execution of the Work Plan (e.g. EU, UfM, MENBO, ADB, WB...)
- **Centres of excellence**, which would actively participate in the shaping and execution of the activities of the Work Plan (UNESCO chairs, universities, national centres of excellence proposed by the member countries of the 5+5 Dialogue, among others).

On such grounds, member countries are encouraged to communicate the most relevant institutions **in their respective countries** that could be involved in this Programme.

2.5.4 Work Plan delivery process

The preparation of the Work Plan will follow the following steps:

- The Steering Group collects the Capacity Development needs of the Working Group (WG), grouping them around the themes of the WSWM, to define a first draft of Work Plan. For each proposed activity, it will be necessary to define its scope, contents, potential trainers and the outcome or products resulting from the activity, if any.
- In addition, the Steering Group, supported by the Secretariat, will explore potential backing from strategic partners, identify the most suitable organizers, the most adequate event type and define its potential outcomes.

Each activity in the work Plan will be defined in a “course profile” which will be developed, for the Steering Group review, by the organizing institution or country through an appointed activity coordinator.

¹ Mediterranean Network of Basin Organisms: www.MENBO.org



The activity coordinator will lay down the courses' objectives, its duration, funding, draft contents, potential academic partners, and a preliminary schedule. Should the course be developed by more than one organizing institution or country, a deputy coordinator may be appointed if proposed.

The Activity Coordinator will be in charge of coordinating the contents and speakers of each activity and will hold full responsibility for its outcome.

- The Secretariat will compile the activities validated by the Steering Group and present the Work Plan proposal to the Working Group (WG) for discussion and subsequent approval.

2.5.5 Implementation of the Work Plan

After the approval of the Work Plan by the Working Group (WG), the Secretariat will follow up its implementation (organization and financially). Such activity can be summarized in three main tasks:

- Monitoring of the operational execution of the Work Plan,
- Assessment of results,
- Report to the Working Group (WG).

Monitoring of the operational execution of the Work Plan

- The Secretariat launches each of the activities to be developed in accordance with the Work Plan. In particular, it will be responsible for ensuring that the activities are shaped in accordance with the priorities of the 5+5 Dialogue at all times in terms of the selection of contents, speakers and participants, and that they have their corresponding "course profiles" reviewed by the Steering Group.
- The Secretariat will disseminate the call among the 5+5 WSWM members and those recipients who have been previously identified according to the details of each activity.
- Both the members of the Working Group (WG) and the strategic partners must actively participate in the development of the activities, in order to transmit their knowledge and experiences and contribute to an advance in the subject matter of the activity.

Assessment of results

- The Secretariat will inform the coordinators about the specifics of the assessment reports of any finalized activity (activities' outcomes, the results of the attendees' survey to the participants if relevant, together with any lessons learnt or future improvements to later editions). The Steering Group will review such reports and evaluate if the outcome meets the Programme standards. Failure to deliver the assessment report will impede any disbursement to the course speakers or coordinators.

Report to the Working Group (WG)

- The Secretariat shall report annually on the progress of the Work Plan to the Working Group (WG) and whenever requested by any delegation. The Working Group (WG) will discuss the report and propose any necessary changes according to its needs.



Prior to the finalization of the period of the work Plan, the Steering Group will initiate the assessment process for the new Work Plan.



2.6 Financing of the Programme

For an effective execution of its Work Plan, the Programme requires **sustained funding over time, in accordance with the achievement of the objectives set by the 5+5 Dialogue for its Capacity Development Programme**. The funding should cover:

- The execution of the work Plan in such a way as to ensure the participation of the speakers and coordinators and, where appropriate, sufficient participation for the proper development of some activities. Should there be any financing gap to the course, course fees may be contemplated.

The management of the expenses will be carried out by the organizing institution or country, who may delegate it to the Secretariat.

- The organization of periodic coordination activities to discuss the best way to make the Capacity Development Programme a useful tool for the 5+5 Dialogue and the Western Mediterranean Water community.
- Enable the dissemination of any activities' results, if agreed.

Such funding may be articulated through an overarching funding mechanism agreed by the 5+5 Dialogue or through ad-hoc projects. Strategic partners and country members of the Working Group (WG) are encouraged to participate in the Programme's funding.

Should a country declare its interest in hosting a particular course, the country will assume at least any on-site organization costs as a contribution to the Programme. Additional funding may be provided through travelling and/or accommodation subsidies or grants.

ANNEX 1 – Detailed description of courses

The following course descriptions were prepared by the MENBO Secretariat, taking into account the most pressing water challenges in the Mediterranean and as a means of progressing in the implementation of the Action Plan of the WSWM.

WATER GOVERNANCE

1. “Governance Frameworks for regulating the allocation of Water Resources”

This course addresses priority 1 of the WSWM, Developing and starting up clearly defined legal frameworks.

Water allocation is the process of distributing water supplies to meet the various requirements of a community, achieving a good balance between supply and demand. An appropriate Governance Framework for regulating the allocation of water resources, including legislative and administrative tools, is crucial for efficient resource management.

Steady progress on design and implementation of water governance reforms can be perceived in most of the Western Mediterranean countries. However, a more sustainable progress of governance approaches needs to be established at local, national and transboundary levels, inspired by appropriate and internationally accepted IWRM principles and practices, including management at the appropriate local (catchment, basin, sub-basin) level. In this respect, many Mediterranean countries still suffer from lack of planning capabilities, effective operational strategies, fragmentation of responsibilities between authorities including decentralisation concerns, weak policy implementation and law enforcement.

This course aims to strengthen the capacities of professionals in the governance and distribution of water resources and promote the exchange of experiences between the countries of the region.

2. “Cross-border management of water resources”

This course addresses Priority 2 of the WSWM, Establishing governance adapted to Integrated Water Management.

In the Western Mediterranean countries, many water resources are shared between several countries. Therefore, it is necessary to promote equitable and cooperative development in transboundary water management, both in individual basins and globally. The management of transboundary basins requires the formalization of operational arrangements between the countries that share the resource and the articulation of organizations that manage it properly.

In this context, it is essential to put in place arrangements that allow the sharing of experiences, knowledge, perspectives and tools, to better equip managers and institutions of transboundary waters to collaborate effectively.

This course will train professionals on the main agreements and tools for the management of transboundary basins to facilitate the exchange of experiences in the Region.

3. “Water demand management: leakage management and metering”

To be developed.

4. “Water governance and corruption prevention”

To be developed.

NON-CONVENTIONAL WATER RESOURCES

5. “Wastewater reuse (agriculture, urban, stakeholders’ concerns)”

This course addresses Priorities 9 and 10 of the Strategy, Climate Change Adaptation and Increasing and mobilising the available resources.

Due to its strong sun exposure, in the Mediterranean there is a high demand of water for agriculture, as well as large population densities along the coast, extreme tourism-related pressures and elevated evapotranspiration. Moreover, the scarce precipitation is unevenly distributed in time and occurs with a high inter- and intra- annual variability. All these factors result in a water deficit in the Mediterranean region that cannot always be solved by appropriate demand management.

In this context, non-conventional resources (NCWR) are an additional component of water plans, especially in semi-arid areas, and represent an important part of the inflows, as often without these resources it would not be possible to meet today's growing demands.

Be it for agriculture or urban purposes In particular, treatment and reuse of wastewater stands as an essential opportunity to be exploited in order to compensate for the lack of conventional resources in the Mediterranean when there are shortages to meet the demands. However, an uncontrolled use of insufficiently treated water may cause risks to users and the environment.

It is necessary to assess the possibilities and the risks of treating and using wastewater and mobilise the use of low-cost / low-maintenance wastewater treatment techniques so that they can be implemented in rural and peri-urban areas. Such techniques must comply with the established quality standards and existing public health regulations regarding the use of non-conventional resources.

This course will address the key aspects of wastewater reuse, analysing the current legal framework and the standards developed at European and international level, presenting the advances in research and the best available technologies.

6. “Desalination of seawater and brackish water: legal, technical and institutional aspects”

This course also addresses Priorities 9 and 10 of the Strategy, Climate Change Adaptation and Increasing and mobilising the available resources.

The production of desalinated water represents a huge opportunity to mobilise resources in countries where chronic water scarcity strongly limits the availability of conventional resources. The most prevalent use is to produce potable water from saline water for domestic or municipal purposes, but the use of desalination and desalination technologies for industrial applications is growing and the desalination of underground water is an opportunity that can help diversify supplies.

The greatest concern regarding desalination is the need to reduce energy consumption in the plants to address sustainability concerns. Moreover, technologies to deal with the of brine rejection are equally key in this regard.

Thus, in order to achieve a sustainable production of desalinated water, it is necessary to promote the use of more efficient technologies that also minimise environmental impacts as well as the utilisation of renewable energies in the desalination plants. This necessitates the development of

desalination Programmes from a legal and political scope, allowing private sector investments to adapt to the rapidly increasing demand.

This course will address the key aspects of seawater desalination, analysing the current legal frameworks and the standards developed at European and international level. Advances in research and the best available technologies, will also be presented.

DIGITALISATION OF THE WATER SECTOR

7. “Water management and use, Mediterranean Water Knowledge Platform”

Organising the access to the necessary data and information for water management is often challenging for many reasons. Often, the capital of data that already exists and produced at a high cost, is underexploited and the capacities for producing information necessary to an efficient water policy implementation, are limited. In many cases, this situation generates a negative economic impact mainly due to the lack of access to data and duplication of works, but it can be even more negative in case of wrong decisions taken due to lack of key information.

The efforts aimed to improve the knowledge on water management should be directed at:

- Ensuring the capacity Development of water management and environmental protection administrations, technicians, users and all competent stakeholders in order to empower them to better fulfil their roles;
- Education and capacity development on data production and exchange;
- Fostering water information systems and platforms on water that can provide a water status diagnose on the Mediterranean Region.

Accordingly, this course will provide the essential tools to help develop sound and robust information systems as well as strengthen existing ones. In this context, the Project on the “Mediterranean Water Knowledge Platform”, further aiming at the elaboration of a White Book on Water in the Mediterranean, will also be presented in this course.

8. “Monitoring networks and sampling techniques for water quality and quantity: surface and groundwater”

One of the basic premises to achieve an adequate management of water is the knowledge of data (*we cannot assess what we do not know*), their analysis and updating, as well as their accessibility. This requires the existence of measurement networks to monitor and supply the necessary data. On the one hand, the existing resources must be known and assessed, both in quantitative and qualitative terms. On the other hand, water uses must also be measured, i.e. consumption made by water users (agriculture, industry, urban...)

Implementing effective monitoring systems that provide essential qualitative and quantitative information, is one of the main levers of a sound and robust water management, as it contributes to offer a statistically sound and comprehensive picture of the status of the aquatic environment, as well as to identify and respond to law infringements on water use. Moreover, such monitoring systems are crucial in the run to achieve the ultimate objective of guaranteeing the good ecological status of water bodies required by the Water Framework Directive.

ENVIRONMENTAL ISSUES

9. “Wetlands restoration”

This course addresses Priority 13 of the 5+5 Strategy, Protection of Water quality and biodiversity.

Wetlands play an important role in different parts of the river basin, influencing the status of the adjacent water body. They are one of the most productive ecosystems on Earth, the heart of food webs and of the rich biodiversity associated with them.

This course will go through the different techniques used for wetland restoration and those tested through different projects carried out in the Mediterranean and beyond. Its organization will count, in particular, with the involvement of MedWet, the Mediterranean wetlands Initiative established in 1991.

10. “Nature-based solutions and eco-hydrology: flood mitigation and urban regeneration”

This course addresses Priority 13 of the 5+5 Strategy, Protection of Water quality and biodiversity.

Nature-based Solutions are defined as actions to protect, sustainably manage, and restore natural or modified ecosystems, addressing societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

In general, Nature-based Solutions comprise 3 types of actions, that can be combined:

1. Preservation of functional ecosystems in a good ecological status,
2. Improvement of ecosystems sustainable management,
3. Ecosystem restoration.

The course will display existing NbS initiatives, addressing in particular flood mitigation and urban regeneration.

11. “Erosion and river sediment transport, social and environmental implications”

According to the Report on the State of the World's Soil Resources (FAO. 2015)¹, erosive processes constitute one of the ten main threats to soil. This phenomenon is due to a multitude of processes of different characterization that give rise to soil lamination and generation of fluvial sediments, altering the channels and increasing risks such as landslides and floods. According to the FAO², soil erosion decreases agricultural productivity, degrades ecosystems, amplifies hydrogeological risk, causes significant biodiversity losses, damages urban infrastructure and, in severe cases, leads to the displacement of human populations.

12. “Wastewater treatment technologies and discharge regulations: circular treatments”

Water treatment and reuse can provide solutions when there are problems to meet the demands. However, the use of insufficiently treated water may cause risks to users and the environment. Thus, it is necessary to assess the risks of wastewater treatments while also mobilizing the use of low-cost and low-maintenance wastewater treatment techniques. In addition, water treatment techniques must meet the established quality standards and the existing regulations on public health on the use of non-conventional resources.

¹ <https://www.fao.org/3/i5126s/i5126s.pdf>

² <https://www.fao.org/about/meetings/soil-erosion-symposium/key-messages/es/>



Accordingly, the way forward as regards wastewater treatment includes the following requirements:

- Set up legal and national political frameworks,
- Establish quality standards and use-guidelines to protect public health and the environment, taking into account national policies,
- Consider grey water recycling systems as a potential and easier option to implement on a low-cost small-scale basis,
- Establish upstream discharge controls to reduce the pollutant loading in the sewer systems in order to reduce the level of treatment needed to ensure the quality of supply required for re-use. This will ensure that treated water is produced at the lowest possible cost.
- Promote upstream technologies for industrial wastewater treatment through a water reuse system, to obtain regenerated water with health guarantees.
- Set up an action plan for mud management with and sludge processing, to develop treatments for the recovery of sludge.

This course will go through the state-of-the-art technologies of wastewater treatment.

13. “Environmental impact of desalination and reuse”

To be developed.

14. “Emerging Pollutants”

To be developed.

CLIMATE CHANGE

15. “Adaptation strategies in the face of climate change and extreme weather events”

Climate change adaptation constitutes Priority 9 of the Water Strategy in the Western Mediterranean (WSWM, March 2015), which highlights the serious impact of climate change on the Mediterranean Region and the necessity to strengthen institutional and technical instruments to improve the adaptation strategies. This requires the development of methods, data sets and prediction models in order to acquire early-warning tools and vulnerability indicators, and the improvement of capacities of professionals in the different fields.

16. “Scenario modelling for surface and groundwater on the impacts of climate change”

As recalled in Priority 9 of the WSWM Strategy, the Mediterranean region faces aggravating climate-related impacts on water resources, including in both, surface and groundwater. Thus, it is urgent to develop and improve technical tools to enhance the knowledge on climate change effects and build accurate prediction models in order to facilitate decision-making and prevent extreme effects of climate change.

This course aims to train professionals in scenario modelling for surface and groundwater on the impacts of climate change, providing theoretical and practical capacity development in the discipline and promoting the exchange of experiences among the attendees.

WATER-ENERGY-FOOD-ECOSYSTEMS Nexus – IWRM

17. “IWRM and Water Planning”

This course addresses priority 2 of the 5+5 Strategy. Moreover, SDG 6.5 of the Agenda 2030 of the United Nations, calls for the implementation of integrated water resources management (IWRM) at all levels, including through transboundary cooperation, as appropriate.

Sectorial approaches have been dominant in the past in regards to water resources management. Yet, such approaches result in a fragmented and uncoordinated development and management of the resource. The lack of inter-sectoral relations leads to conflicts, waste and unsustainable systems.

On the contrary, IWRM allows for the coordination and collaboration amongst individual sectors and promotes stakeholder participation, transparency and a profitable local management. Integrated Water Resources Management is the practice of making decisions and taking actions bearing in mind multiple points of view on how to manage water in order to harmonise demand satisfaction and the definition and achievement of environmental objectives for water bodies.

This course will focus on the necessary regulatory frameworks, planning and management tools used to ensure that water resources are managed in a sustainable, equitable, effective and efficient manner, promoting effective coordination between the management of water and other natural resources to maximise economic and social progress in a fair and environmentally sound way.

An effective implementation of IWRM systems will contribute to the achievement of SDG 6 in an equitable and sustainable manner, helping to strike a balance between meeting the water demands needed to promote growth and economic progress, but also to preserve ecosystems and protect the environment, two crosscutting goals of the 2030 Agenda for Sustainable Development.

18. “Management of WEF Nexus (Water-Energy-Food)”

To be developed.

19. “Management of Nexus Water-Climate Change-Migration”

To be developed

ANNEX II - Interests expressed by delegations on WSWM's strategic axes during the 9th and 10th WG meetings: 10th March 2022 / 22nd September 2022

DELEGATIONS	Water Governance	Non-Conventional Water Resources	Digitalisation of the water sector	Climate Change Adaptation	Nature-Based Solutions	Environmental Issues	WEFE Nexus -IWRM
Algeria			Climatic modelling	Prevention & control of extreme events			Green economy
Italy	River contracts	X					
Mauritania	Right2Water – Water access	Non-Conventional Water Resources		X			Nexus Water-Energy
Morocco	Water demand management Environmental Law enforcement Access to Funding for projects Water Financing Water Accounting	Desalination/Reuse	Sustainability - Efficient maintenance of information systems Monitoring Evaluation of indicators	Climate Modelling		X	
Tunisia	Corruption prevention Right2Water - Access to vulnerable groups			Adaptation to climate change		Environmental impact of desalination and reuse.	Nexus Water-Climate Change - Migration.

	Water Management Governance Innovation						
European Commission	Financing of infrastructures	Circular economy	Climate modelling			Emerging pollutants Management of plastics.	Water – Energy Nexus
Maghreb Arab Union (MAU)		MAU - FAO joint project					
Union for the Mediterranean (UfM)	Water regulation (besides water governance)	X	Mediterranean Knowledge Platform Project		X		Renewable energy

ANEXE III - Event Categories

For the development of this Capacity Development Programme, the following categories of capacity development events have been defined:

	Symposium	Workshop	Seminar
Duration	4h – 1 day (2 x 2h)	8h – 2 day (4 x 2h)	20h – 3 +1 days ¹ (10 x 2h)
Target	General public	Government officials	General public (35 attendees)
Face to Face	-	-	<input checked="" type="checkbox"/>
Virtual access	<input checked="" type="checkbox"/>		
Estimated cost	1,500 €	3,000 €	20,000 €

¹ 3-day duration of lectures and 1 day of technical side visits

ANNEX IV - Motion draft proposals regarding the Capacity Development and Knowledge Transfer Programme on water for the Western Mediterranean

- *The Working Group (WG) of the Water Strategy for the Western Mediterranean 5+5, agrees to the establishment of the Capacity Development and Knowledge Transfer Program on Water for the Western Mediterranean, as well as to its framework for operation and financing.*
- *The Working Group (WG) of the 5+5 Dialogue formalizes the creation of the Steering Group (SG) of the Capacity Development and Knowledge Transfer Programme on Water for the Western Mediterranean with the following members and associates, resulting from the conclusions of the 10th WG meeting (22nd September 2022): Spain, Mauritania, Malta, Morocco, UNESCO, Union for the Mediterranean (UfM), Mediterranean Water Institute (IME).*
- *The Working Group (WG) of the 5+5 Dialogue approves the 2023-2024 Work Plan of the Capacity Development and Knowledge Transfer Program on Water for the Western Mediterranean, and entitles its Steering Group (SG), supported by the Secretariat, to define a preliminary schedule to this Work Plan before February 1st 2023.*
- *The Working Group of the 5+5 Dialogue entitles the Secretariat to compile from member countries the list of courses they are interested in attending and those which they would like to lead or contribute to, together with references of any relevant academic institutions in their respective countries, which may contribute to the Programme.*

ANNEXE V – Template for the description of courses

1. TRAINING PROPOSAL

Indication of the name of the activity. It should be as similar as possible to the name it will have when it is convened.

2. IDENTIFIED NEEDS

Main drivers for capacity building.

3. INSTITUTION ORGANISING THE ACTIVITY

Institution (one or several) that will be in charge of all the details related to the call for proposals, selection of participants and dialogue with them.

4. ACADEMIC COORDINATION

Institution in charge of the formulation of the activity and its complete set-up, including the selection of speakers. There will be a person responsible for the coordination who will complete the activity programming report, as well as the results report, with an analysis of the impact of the activity for CODA and for the region.

The following information related to the course should be collected:

- a. Presentation and justification of the course
- b. Background
- c. Course objectives
- d. Contents
- e. Methodology
- f. Speakers and course coordinators.

5. MODALITY

Proposal of the most relevant modality for the activity: face-to-face/virtual/mixed.

6. DURATION/DATES

Proposed duration and tentative dates.

7. VENUE

Proposal of the place where the activity is to be carried out.

8. PROGRAMNE

Course programme including modules, topics and sessions planned, duration and speakers.

9. PRODUCT

Proposed product resulting from the proposed activity (ies).

10. FINANCING INSTITUTIONS

Proposed institution contributing to the financing of the activity.

11. REMARKS

Include any comments considered relevant to the activity.

ANNEXE VI - Template for the Final Report of the course

1. COVER PAGE

Template to be developed.

2. CONTENTS:

Index of topics and subtopics to be included in the report.

3. TRAINING PROPOSAL

Name of the course as it appears in the dossier.

Justification of the activity.

4. MODALITY:

Modality in which the course was delivered (face-to-face, virtual, blended).

5. VENUE AND DATE OF THE COURSE:

Name of the training centre and its location.

6. INVOLVED INSTITUTIONS

Institutions that have been part of the activity, from an academic or funding point of view.

6. PRESENTATION:

6.1. CONCEPTS.

6.2. THEORETICAL FRAMEWORK UNDERPINNING THE CONTENTS OF THE COURSE.

6.3. SUMMARY OF ACTIVITIES (PRESENTATION OF PARTICIPANTS, PROFILE, SPECIFIC MILESTONES DEVELOPED).

7. OBJETIVES:

(See the course dossier).

7.1. GENERAL OBJECTIVE

7.2. SPECIFIC OBJECTIVE

8. PROGRAMME:

Programa del curso, ampliado por temas (Ver Anexo II)

9. COORDINATION AND SPEAKERS.

Profiles of the trainers.

10. ACTIVITIES UNDERTAKEN:

Contents taught throughout the activity, distinguishing academic work, case studies and technical visits.

Details of each and every one of the activities carried out, ordered by topics of the extended course programme.

It should aim to include the main concerns and observations of the participants (learners), as well as the respective response.

If the course has included a field trip, the details of the actions carried out should also be included.

11. ASSESSMENT OF THE COURSE

Results of the evaluation survey carried out among the participants.

12. CONCLUSIONS:

Lessons learned and feedback from participants. Achievement of course objectives.

13. RECOMENDATIONS:

Opportunities for improvement and suggestions for future courses covering the same subject matter. Suggestions for courses that give continuity to the objectives covered.

13. BIBLIOGRAPHY:

References of bibliographic material provided and recommended to complement the theoretical contents covered during the course day.

ANNEXE VII - Template questionnaire for the evaluation

EVALUATION QUESTIONNAIRE COURSES 5+5	
Course:	Name of the Course
Dates of delivery:	

Evaluation of the course.
Please rate the following aspects of the course using a rating scale from 1 to 5 (1 lowest score and 5 highest score). Please mark with an X the corresponding score

1. Organisation of the course	1	2	3	4	5
1.1 The course was well organised (communications, adherence to dates/times...).					
1.2 The information available on the course is sufficient and easily accessible.					
1.3 The organisers have dealt with the incidents promptly and correctly.					
2. Contents and methodology	1	2	3	4	5
2.1 The course content is clear, up-to-date and well written.					
2.2 The contents of the course have been adjusted to my training needs.					
2.3 There has been an adequate number of practical activities.					
2.4 The course content and activities are of a quality appropriate to what is expected in this course.					
3. Duration	1	2	3	4	5
3.1 The duration of the course was sufficient according to the objectives and contents of the course.					
4. Tutors	1	2	3	4	5
4.1 The tutor has an in-depth knowledge of the topics covered					

4.2 Has managed to solve the problems and doubts adequately					
4.3 Has created a climate conducive to learning					
4.4 The tutor has answered my doubts and queries in a timely manner.					
4.5 The quality of responses was adequate.					
5. Teaching materials	1	2	3	4	5
5.1 The contents are presented in a comprehensible and appropriate format.					
5.2 The design of the content is practical, dynamic and conducive to learning.					
5.3 Exercises and case studies are useful, practical and complementary to learning.					
5.4 Videos, articles etc of supplementary material have been appropriate to the course.					
5.5 The assessment tests have allowed me to know the level of learning achieved.					
6. Equipment and technical means (on-line courses)	1	2	3	4	5
6.1 The OnLine methodology has been appropriate for this course.					
6.2 The resources for communication (messaging, forum, wall...) have been useful, sufficient and easy to use.					
6.3 The OnLine platform is practical and easy to use.					
6.4 The OnLine platform has functioned correctly during the course.					
6.5 The keys, information guides, etc...about the platform have been clear and useful.					
6.6 The technical service has solved my doubts or difficulties correctly and on time.					
7. Overall assessment of the course	1	2	3	4	5
7.1 It has been practical					
7.2 What I have learned will be useful for my work					

7.3 The course lived up to my expectations					
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8. Open questions
8.1 What do you think have been the main contributions of the course?
8.2 Do you think it could be improved? If so, how?
8.3 Please indicate other training actions of interest to you.
THANK YOU FOR YOUR COOPERATION