Workshop Report
"1st Regional Training on Drought Risk Management Mainstreaming (DRMM)"

as part of the Activity on
"Drought Risk Management (DRM) Mainstreaming in the Partner Countries"

Version	Document Title	Authors	Review and Clearance
1	Workshop Report "1st Regional Training on Drought Risk Management Mainstreaming (DRMM)"	Maggie Kossida, Dimitris Zarris, Suzan Taha	Michael Scoullos

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1. BACKROUND AND OBJECTIVES

1.1 Background - Rationale of the activity

During 2013, under the framework of the SWIM-SM project, a regional assessment[1] of past drought and flood events in the SWIM Partner Countries (PCs) was undertaken, in order to identify their prevailing characteristics (frequency of occurrence, severity/magnitude, and geographic extent) and potential environmental and socio-economic impacts. The assessment also involved a detailed analysis of the prevailing drought management practices and response actions implemented in three partner countries (Jordan, Palestine and Tunisia).

The main finding of the regional assessment, in terms of drought risk, indicated an increasing trend in the occurrence of drought episodes in the partner countries covered by the SWIM Project, expected to be exacerbated by climate change. The assessment also highlighted the existing gaps in drought management, and concluded that the need for effective response to drought risk is paramount, and that the introduction and/or promotion of concepts and methodologies for proactive management in the region is necessary for shifting from the customary "crisis management" paradigm to "risk management". A well-established risk management system which entails the identification of vulnerability and risk, and incorporates prevention, mitigation and preparedness measures needs to be developed and maintained by governments and other competent actors of the countries of the region. This in turn requires, inter alia, the adoption of enabling policies, robust legal frameworks and proper institutional arrangements at the national and local levels, implementing awareness campaigns, promoting resilience through knowledge, advocacy, research and training, making information available and to up-to date, etc.

Considering the above findings, during the t Fact Finding (FF) missions conducted during the inception phase of the SWIM - H2020 SM project in 2016, and the communicated priorities by the PCs, drought risk management emerged as one of the priority themes for the region. More specifically, Egypt, Jordan and Tunisia requests relate directly to drought risk management aspects, while requests from Algeria and Morocco are indirectly linked to drought and water scarcity risk mitigation.

Along these lines, and as part of SWIM-H2020 SM's Workplan, a regional activity on "Drought Risk Management Mainstreaming (DRMM) in the partner countries" has been launched and the current Workshop, held in Athens on 14-15 December 2016, constitutes the first sub-activity of the DRMM regional activity.

The concept of Drought Risk Management Mainstreaming (DRMM) was introduced by the UNDP (UNDP, 2011[2]). Mainstreaming is defined as "a process of change, whereby certain issues are integrated into planning and decision-making processes and these issues continue to be part of the

[1] Taha, S., Rabi, A., Touzi, S. 2014. Regional assessment of past drought & flood episodes and their management in selected SWIM-SM PCS (Tunisia, Jordan and Palestine). SWIM-SM Report, WP1, Water Governance and Mainstreaming, Activity 1.3.3.1, February 2014 (accessed 28.03.2016)

[2] United Nations Development Programme (UNDP), 2011. Mainstreaming Drought Risk Management: A primer. UNDP Publication, March 2011 (accessed 28.03.2016)

agenda in subsequent planning, implementation and revision" (UNDP, 2008[3]). DRMM clearly relates to proactive risk management, as it helps addressing drought issues not simply as a natural phenomenon but as a more complex development issue. It supports the internalization of drought risk throughout the planning, funding and implementation stages of any development framework, and further ensures that sectors' policies do not counter their intended purposes of drought mitigation and preparedness-related efforts (UNDP, 2011[2]). It further sets the cornerstones towards the identification and development of the proper enabling environment and institutional setting that can strengthen the adaptive capacity of the affected communities in a sustainable way. To achieve DRM mainstreaming a set of steps need to be coherently implemented:

- Step 1: Definition and development of a Drought Risk Profile
- Step 2: Identification of DRM options: Design and simulation of mitigation measures
- Step 3: Prioritization of DRM options: Optimization and Decision-making
- Step 4: Internalization of DRM: Definition of policy targets and Implementation

1.2 Workshop Objectives

The activities to be undertaken by SWIM-H2020 SM related to DRMM cover a wide spectrum of themes from science to policy, and cut across the project's Work Packages Expert Facility, peer-to-peer experience sharing and dialogue, and training activities. The current regional training "Drought Risk Management (DRM) Mainstreaming" constituted the first sub-activity of the regional activity "Mainstreaming DRM in the partner countries", aiming at:

- Introducing the PCs' participants to the concepts of proactive Drought Risk Management (DRM) and DRM Mainstreaming (DRMM)
- Initiating a participatory approach to support the identification of specific priorities, challenges and opportunities around DRM, and the subsequent design and implementation of targeted activities that accommodate the different needs of the PCs.
- Launching a peer-to-peer process for experience sharing at regional level and knowledge transfer (south- -south, north- -south) around DRMM.
- Supporting the drafting of peer-to-peer follow up actions.

The specific objectives of this workshop were:

- Share and disseminate the findings of the previous phase of SWIM, namely the main findings on the regional assessment on drought and use them as a basis for stimulating discussion and exchanging points of view;
- Introduce the participants to the concepts of proactive Drought Risk Management (DRM) and DRM Mainstreaming (DRMM);
- Expose the participants to international examples (including from EU countries) on DRM;

[3] United Nations Development Programme (UNDP), 2008. Mainstreaming Drylands Issues into National Development Frameworks: Generic Guidelines and Lessons Leant. Nairobi: UNDP.

- Further discuss and elaborate on the SWIM-H2020 SM Fact Finding missions' outcomes, related to Drought Risk Management issues to identify commonalities among the PCs and topics of mutual interest;
- Capture the specific challenges and needs of the national/regional partners in relation to increasing their resilience to drought and water scarcity; identify their priorities around DRM (e.g. drought characterization, strengthening of the legal/policy framework, design of measures to mitigate the impacts of drought and manage water scarcity, designing of institutional arrangements, etc.);
- Enable the design of the peer-to peer process for experience sharing (and the DRMM activities within the Experts Facility, as applicable);
- Identify priority areas for capacity building and training. This should enable the planned second regional on-site training, study tour and peer-to-peer experience sharing and dialogue, that will be implemented within the framework of "DRM Mainstreaming" in relation to the "Assessment of Water Resources Vulnerability and related Risks" SWIM-H2020 theme, and as such a corresponding roadmap based on the feedback of the stakeholders would be developed;
- Initiate a participatory approach with the stakeholders in order to subsequently engage them in the following activities on DRMM at national and/or local level (e.g. development of drought risk profiles, identification of mainstreaming entry points, awareness raising on demand management, etc.);
- Promote sharing of experiences between the PCs on Drought Risk Management, facilitate exchanges and the development of synergies and complementary activities at regional level.

2. METHODOLOGY AND STRUCTURE OF THE REGIONAL TRAINING

2.1 Methodology

The following steps have been followed when designing the regional training:

- Defining the training objectives, including the main topic/concept around which the training will evolve (i.e. DRMM)
- Defining the expected outcomes
- Defining the target group to be trained (including consideration of training-the-trainers ToT possibilities)
- Defining the training approach and specificities

The training objectives and main concept:

The training objectives have been identified as presented in the Section 1.2 above. The objectives are aligned with the need to move towards a more efficient and proactive risk-based drought management as recognized at the higher policy level (WMO, UNCCD, HMNDP, 2013[4], etc.)

The main concept, around which the training has been designed, refers to the proactive drought management, and more specifically the UNDP concept of Drought Risk Management Mainstreaming (DRMM[2]). DRMM moves proactive risk management one step further, by linking the related measures to existing policies and institutions, and internalizing risk management plans into the development of national, sectoral and local programs and frameworks. This approach can boost the implementation of the measures and sustainability. More specifically, DRMM:

- relates to proactive risk management, as it helps addressing drought issues not simply as a natural phenomenon, but as a more complex development issue
- supports the internalization of drought risk in development framework and sets the cornerstones towards the development of the proper enabling environment and institutional setting.
- requires a set of steps, coherently linked, covering science to policy activities (ref. to Figure 1)

[4] High-level Meeting on National Drought Policy (HMNDP), 2013b. Policy Document: National Drought Management Policy, 11-15 March 2013, Geneva. Available online: http://www.wmo.int/pages/prog/wcp/drought/hmndp/documents/PolicyDocumentRev_12-2013_En.pdf

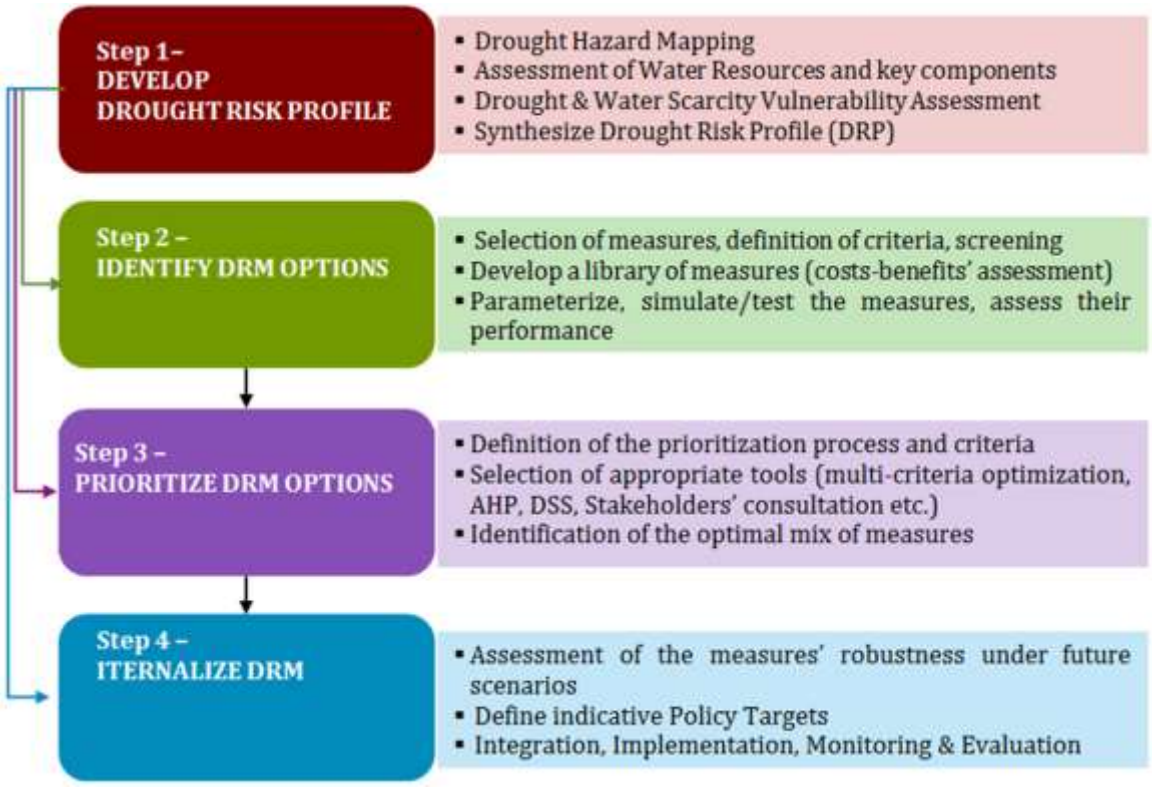

Figure 1: Main steps and actions in DRMM

The expected outcomes of the regional training:

- High-level key stakeholders are introduced to the main concepts and underlying principles of drought risk management (e.g. proactive vs. crisis management, risk mainstreaming, etc.), and familiarized with the various methodological steps to be followed
- High-level key stakeholders are aware and engaged in the identification and design of specific activities that can support DRM Mainstreaming
- A regional dialogue on drought management issues is initiated between high level personnel form PCs and international technical experts, across key sectors, establishing the basis for the development of synergetic activities and regional cooperation
- Priority themes/areas on DRM Mainstreaming, to be supported through SWIM-H2020 SM regional activities (linked also to the Expert Facility as applicable), are further elaborated during the meeting, on the basis of the PCs' specific needs, new knowledge, and the participatory process with the stakeholders
- The peer-to-peer process for experience sharing at regional level and knowledge transfer (south-south, north-south) around DRMM is launched, and priority themes/areas defined.

The target group to be trained:

The main target group was defined to be the decision makers who are involved in the different aspects of Drought Risk Management in the PCs (indicatively at the level of Technical Directors involved in the design and planning, and/or the decision-making and policy formulation). Two to three representatives were targeted to be invited from each PC as per the following:

- One representative from the Water Sector

- One representative from the Agricultural and Irrigation Sector, and
- One representative from another related water-intensive sector (e.g. industry), or from the main water utility in the country, or from a body directly related to drought and water scarcity management

In order to reach the intended workshop's benefits, the countries' nominees/representatives had to be directly involved in the different aspects of drought risk management (planning, preparedness, adaptation and mitigation) in the respective sector and/or be responsible for planning developments that affects and is affected by drought.

In addition to the above, the following regional/ international actors were targeted and invited:

- Regional initiatives including: the ongoing EU funded "CLIMA South" project, the GIZ supported "Adaptation to Climate Change in the Water Sector in the MENA Region (ACCWaM)" project implemented in partnership with the Arab Ministerial Water Council (AMWC) of the League of Arab States (LAS), the GWP-Med project on water related adaptation to climate variability and change
- Donors involved such as GIZ Jordan, Egypt and Morocco, SIDA,
- Regional and International Organisations working in this field in the region, such as:
  - United Nations Economic and Social Commission for Western Asia (UN ESCWA) regional office in Lebanon,
  - FAO Near East and North Africa's Water Scarcity Initiative (representative from the FAO Regional Office for Near East and North Africa in Egypt, or the FAO Subregional Office for North Africa in Tunisia, or the FAO Agriculture and Land and Water Use Commission (ALAWUC))
  - Arab Water Council (AWC) ("Regional Coordination on Improved Water Resources Management and Capacity Building Program -RCIWRC")
  - Arab Center for the Studies of Arid Zone and Dry Lands (ACSAD) (which is under the umbrella of the League of Arab States (LAS))
  - Arab Countries for the Water Utilities Association (ACWUA)
  - Arab Organization for Agricultural Development (AOAD)
  - Centre International de Hautes Etudes Agronomiques Méditerranéennes (CIHEAM) Bari

Each SWIM national Focal Point asked to select participants who share similar job roles or functions and therefore face similar challenges and their CVs were checked by the SWIM team and the Commission. The full list of participants can be found in the Annex.

The training approach and specificities:

In order to achieve the workshop objectives, a highly dynamic, interactive, facilitated and participatory approach has been adopted. A variety of presentations and sessions has been designed that cover multiple purposes: a) providing background knowledge regarding the findings of the past drought analysis in the region and in focus countries, b) establishing a common understanding on the basic concepts and definitions of drought and water scarcity and informing on the state-of-art drought risk management approaches, c) presenting international experiences and good practices on drought risk management from the region and beyond, d) providing training on the concept of the DRMM and the

different steps of the process, e) supporting information exchange among the PCs and facilitating an open interactive dialogue in order to identify specific training needs, f) boosting the development of a Community of Practice (CoP) on DRMM in the MENA region, g) assessing the advancement of knowledge of the trainees. For this purpose the training was developed around 7 building blocks, as presented in detail in Section 2.2 below.

2.2 Structure of the Regional Training

The training was developed around 7 building blocks, as presented in the Table 1 below. Each building block was designed to meet a well-defined purpose, while specific training activities were prescribed to underpin them.

Table 1: Building blocks of the regional training, their purpose and related activities

Building Block	Purpose	Related Training Activities
Enhancing background knowledge/ exposing the problem	▪ Providing background knowledge regarding the findings of the past drought analysis in the region and in 2 focus countries ▪ Raising awareness on the significance of the problem (drivers, pressures, state, impact, current response) and the main gaps related to drought risk management	- Presentation of the findings of the Regional assessment of past drought episodes and their management in the SWIM countries - Presentation of the findings of the assessment of past drought episodes and their management in 2 focus PCs (Palestine, Jordan)
Establishing a common language	▪ Establishing a common understanding on the basic concepts and definitions of drought and water scarcity ▪ Informing on the state-of-art drought risk management approaches ▪ Introducing the concept of DRMM	- Presentation on Drought risk management: current approaches. Introducing the UNDP DRM Mainstreaming framework
International examples on DRM, exchange of experiences	▪ Presenting international experiences and good practices on drought risk management from the region and beyond ▪ Support the exchange of experiences and transfer of knowledge/ practices ▪ Present a synthesis of the outcomes of the collected Q1 Country Questionnaire ▪ Get feedback on specific aspects of DRM as implemented (or not implemented) in the PCs	- Presentations of good practices and/or experiences on proactive drought risk management. Country examples from Israel, Spain, UK, Italy - Distribution and collection (prior to the workshop) of the Q1 Country Questionnaire (refer to Annex) - Presentation (synthesis) of the outcomes/feedback from the Q1 Country Questionnaire

	▪ Facilitate an open discussion leading to the identification of good practices, weaknesses and bottlenecks with regards to DRM in the PCs	- Interactive stocktaking exercise (facilitated by the NKE, Consultant 1) on drought risk management approaches, good practices and weaknesses in the PCs
Basic training on the DRMM methodology and steps	▪ Specific training on the different steps (1-4) of the DRMM methodological approach: methods, tools, challenges, etc.	- Definition of Drought Risk Profile (methods and tools, challenges) - Design and simulation of mitigation measures, prioritization and decision-making - Internalizing DRM into policy and development frameworks (preconditions, steps, obstacles)
Developing a roadmap for future DRMM regional activities	▪ Identification of the country needs and priority areas for action (brainstorming) ▪ Elaborate on specific regional activities on DRMM in relation to the PCs needs ▪ Launching of the peer-to-peer process ▪ Boost the development of a Community of Practice (CoP) on DRMM in the MENA region	- Presentation of the partners' countries requests (under the expert facility) and their links to the DRMM steps - Breakout groups (per country) to brainstorm on each county needs and priority areas, and reporting back to the plenary - Plenary discussion (facilitated by the NKE, Consultant 1) with all PCs to elaborate on the needs/ priorities - Initiation of a peer-to-peer matchmaking process (on the basis of the PCs offer & demand)
Knowledge Evaluation	▪ Assessing the advancement of knowledge of the trainees (prior and after attending the workshop)	- Completing of Q2 Training Assessment Questionnaire (refer to Annex) by the participants (questions 1 to 6) prior to the workshop - Completing of Q2 Training Assessment Questionnaire (all questions, 1 to 14) after the workshop - Evaluation of the completed Q2 Questionnaires by the trainers, and comparative assessment of the Q2

		replies prior and after the workshop. Production of relevant statistics
Workshop evaluation	▪ Get participants' feedback on organizational, administrative and planning issues before and during the event ▪ Get participants' feedback on technical aspects of the training ▪ Improve future regional training events on the basis of the comments received	- Completing of Q3 Evaluation Questionnaire (refer to Annex) by the participants - Evaluation of the completed Q3 Questionnaire by the organizers and production of relevant statistics

The key points of the different presentations (informative presentations on the state of DRM in the region, international knowledge-sharing presentation from different countries, training-oriented presentations on the concepts and steps of the DRMM) are presented below:

Presentation of the findings of the Regional assessment of past drought episodes and their management in the SWIM countries Presented by: **Ms. Suzan TAHA**, Key Water Expert
Key points of the presentation: Review & Inventory of past drought episodes in the PCs and potential linkage with climate change Presentation of drought occurrence and trends and affected/vulnerable areas by PC (DZ, EG, IL, JO, LB, MO, PS, TN) Overview of the socio-economic and environmental impacts of droughts in the PCs Overview of the main water & environment response in the focus countries (short and long-term measures) Examples of traditional response measures to drought in the PCs and indigenous best practices Presentation of the key findings on drought management in the focus countries (Jordan, Palestine and Tunisia)

Presentation of the findings of the assessment of past drought episodes and their management in Palestine Presented by: **Mr. Ayman RABI**, Non-Key Expert Palestine
Key points of the presentation: Analysis of the importance of Drought Risk Management in Palestine Review of drought occurrence and trends, classification of the drought episodes in Palestine

Analysis of the drivers, pressures, impacts and adopted responses Overview of the institutional setting, policy and legal framework Policy recommendations

Presentation of the findings of the assessment of past drought episodes and their management in Jordan Presented by: **Ms. Suzan TAHA**, Key Water Expert
Key points of the presentation: Overview of the importance of drought risk management in Jordan Analysis of Drought in Jordan under the DPSIR Framework (Drivers, Pressures, State, Impacts & Response) Overview of the institutions and their roles Analysis of gaps and recommendations

Drought Risk Management (DRM) current approaches. Introducing the UNDP DRM Mainstreaming Framework Presented by: **Dr. Maggie KOSSIDA**, Non-key Expert, Consultant 1
Key points of the presentation: Presentation of basic definitions (drought, water scarcity, water stress, impact, vulnerability, risk, resilience, etc.) Elaboration on the factors which have led to poor drought management Overview of the predominant drought management approaches (crisis management/reactive approach vs. risk management/ proactive approach) Vision of the way forward, and analysis of the components of DRM Introduction to the concept of internalization, the concept of the UNDP DRMM (Drought Risk Management Mainstreaming) and its main methodological steps

Presentation of good practices and/or experiences on proactive drought risk management: Country example from Israel **Steps towards Water Sensitive Cities: Urban Runoff - Creating a Resource out of Nuisance** Presented by: **Dr. Yaron ZINGER**, Director, Center for Water Sensitive Cities in Israel
Key points of the presentation: Definition of a “water sensitive city”. The example of Tel-Aviv Overview of the urban hydrology evolution in the pre-developed and developed phase

Overview of the problems associated with the urban stormwater discharge to the sea and presentation of mitigation measures Presentation of the Pilot Site in Kfar-Sava, Israel (artificial aquifer recharge with treated stormwater) – How to create a resources out of a nuisance and move towards a "water sensitive city" Review of biofilters (types, benefits, costs, etc.) Assessment of the urban runoff potential in Tel-Aviv

Presentation of good practices and/or experiences on proactive drought risk management: Country example from Israel **Challenges and Solutions for the Water Sector in Israel and the Region** Presented by: **Mr. Amir GIVATI**, Hydrological Service, Israeli Water Authority
Key points of the presentation: Overview of the challenge of the imbalance between water availability and demand, and the water consumption by sector in Israel Presentation of the characteristics of the major aquifers in Israel: recharge, runoff Presentation of the drought monitoring system using the SPI Index (examples) Overview of measures adopted in order to close the water imbalance gap, analysis of forecasted water demand and water resources (incl. desalination) Presentation of specific measures to increase water supply (drilling, treatment of underground polluted water sources, development of new water sources –desalination, wastewater treatment and reuse), current installed capacities and examples Analysis of water use (per source), water savings and water efficiency in the agricultural sector

Presentation of good practices and/or experiences on proactive drought risk management: Country example from Spain Presented by: **Mr. Jaime FRAILE**, Hydrological Planning Office, Segura River Basin Authority
Key points of the presentation: The relevance of drought management in Spain Overview of drought occurrence and trends in Spain and in Segura River Basin Current responses on the short, medium and long-term (examples from Spanish areas) Overview of the objectives of the Special Droughts Plan of the Segura River Basin (SRB) Presentation of the SRB drought index and related types of responses (according to the index values): indicators, formulas, tools to support their calculations, sub-systems used in the analysis Overview of the different measures (administrative, resources-oriented, policy) of the SRB Drought Plan Gaps, needs and recommendations

Presentation of good practices and/or experiences on proactive drought risk management: Country example from the United Kingdom

Presented by: **Ms. Victoria WILLIAMS**, Senior Advisor, Drought and Demand team, Water Resources, UK Environment Agency

Key points of the presentation:

Overview of the role of the UK Environment Agency (EA) in water resource management

History of droughts in UK

Current drought risk and challenges

Drought planning and response

Overview of the legislative framework

Presentation of mechanisms and interventions (water companies' planning/ long-term resource management plans and interventions, EA drought plans/their elements and interventions)

Overview of the EA Monitoring Programme and Outlooks

Governance arrangements during severe droughts

Issues related to long term resilience

Conclusions

Presentation of good practices and/or experiences on proactive drought risk management: Country example from Italy

Presented by: **Mr. Bernardo MAZZANTI**, Technical Director, Arno River Basin Authority

Key points of the presentation:

Overview of drought events during last 60 years in Italy, damages and risk evaluation

Overview of the Water Framework Directive (WFD) hydrographic districts, and related critical issues (administrative boundaries vs. physical boundaries, overlapped roles and responsabilities, inadequate provisions related to quantitative management)

Drought occurence and trends in the Arno and Po River Basins

Overview of drivers and pressures (related to the WFD abstractions)

Water Accounts as a tool to sup[port the estimation of drought impacts

Methodology for mitigating drought effects and designing suitable measures aligned with the WFD River Basin Management Plans (RBMPs). Presentation of the list of interventions

Examples of drought management tasks in the Po and Arno River Basins (institutional setting, indicators, drought risk maps)

Presentation of the steps in establishing national Drought Observatory Units in each hydrographic district in Italy (Ministerial Decree July 2016)

Overview of critical issues and recommendations

Definition of Drought Risk Profile: methods, tools, challenges Presented by: **Dr. Maggie KOSSIDA**, Non-Key Expert, Consultant 1
Key points of the presentation: Introduction to the general context of Disaster Risk Profiling Overview of problems and constraints in developing a Drought Risk Profile (DRP) Detailed methodology on how to develop a DRP, elaborating on the hazards and vulnerability characterization and assessment, suggestion of a DRI indicator, case study Presentation on Drought Hazard Assessment and Mapping: issues, criteria for selecting indicators, specific example of the DHI indicators, case studies Elaboration on Drought and Water Scarcity Vulnerability assessment: components, approaches, challenges, indicators, example of the DVI indicator, case study

Design and simulation of mitigation measures, prioritization and decision-making Presented by: **Mr. Demetris ZARRIS**, Non Key Expert, Consultant 2
Key points of the presentation: Discussion on the objectives of a Drought Risk Management Plan (DRMP) Presentation of measures/ Programme of Measures (PoMs) within a Drought Risk Management Plan (DRMP): types of measures (preventive/ strategic, operational, organizational, follow-up, restoration/ exit measures), structure of PoMs according to indicators' status (normal, pre-alert, alert, emergency), Overview of the steps to follow in order to simulate and test the measures Overview of some criteria to select and prioritize measures, and tools that can support this process Detailed presentation of a General Archive of Measures for DRP Case study/ example from Cyprus

Internalizing Drought Risk Management (DRM) into policy and development frameworks: preconditions, steps, obstacles Presented by: **Prof. Michael SCOULLOS,** Team Leader of SWIM-H2020 SM; **Dr. Maggie KOSSIDA,** Non-Key Expert, Consultant 1
Key points of the presentation: Elaboration on how to achieve "internalization": options, key elements, sequential phases (proofing and designing, integration, implementation and evaluation phase) Detailed presentations of the sequential phases: components, links to the DPSIR Discussion on the proofing and designing phase: components, tools, how to define goals and criteria, how to define policy targets

Discussion on the integration phase: defining entry points, initiating instruments and mechanisms
Detailed presentation of the Integrative Methodological Framework (IMF) and its synergies
Overview of various aspects of integration of DRM with ICZM, IWRM and other frameworks
Discussion on the implementation and evaluation phases: issues, steps, indicators, challenges

Presentation of the Partners' Countries Requests (under the expert facility) and their links to the DRMM steps
Presented by: **Ms. Suzan TAHA**, Key Water Expert
Key points of the presentation:
Overview of the PC requests (per country) that relate (directly or indirectly) to DRMM under the Expert Facility and linking them to the different steps of the DRMM process

Drought Risk Management (DRM) approaches and good practices in the partner countries
Open Discussion – Feedback from the Country Questionnaire Q1
Presented by: **Dr. Maggie KOSSIDA**, Non-Key Expert, Consultant 1
Key points of the presentation:
Feedback from the Q1 Country Questionnaire (5/8 PCs' replies)
SECTION 1: General Facts about Drought & Water scarcity occurrence (synthesis of the replies to the questions 1-3)
SECTION 2: Monitoring and Assessment of Drought and Water Scarcity (synthesis of the replies to the questions 4-9)
SECTION 3: Managing Drought Risk – the current state (synthesis of the replies to the questions 10-13)
SECTION 4: Managing Drought Risk – Constraint and Gaps (synthesis of the replies to the questions 14-15)

3. WORKSHOP RESULTS

SWIM-H20202 team succeed to mobilise most of the project countries and other organisations to participate in the regional training as indicated in Table 2 below.

Table 2: Workshop participation/ demographics

Total No. of participants from the PCs	16
Number of PCs that were represented	7[5] (DZ, EG, JO, IL, LB, PS, TN)
Gender balance (% of women participants from the PCs)	37.5%
NGO representation: No. of participants from NGOs	3
No. of EU experts (key experts and international speakers) that participated	6

Prior to the training workshop, Q1 Country Questionnaire was sent to all PCs[6] in order to identify their knowledge on drought risk management approaches, good practices and weaknesses in the PCs. The number of completed Q1 received from PCs was 5 out 8.

During the workshop interactive sessions with all the participants were undertaken in order to identify (a) good practices in the PCs in relation to drought risk management, b) associated weaknesses, constraints and bottlenecks, c) needs and priorities of the PCs and their links to the DRMM steps, and d) relevant follow-up activities/requests for the SWIM-H2020 SM regional activity on DRMM. The regional training results are presented in the following Tables 3-6.

Table 3: Identified good practices in the PCs in relation to Drought Risk Management

Technical aspects: Mitigation Measures	▪ Use of non-conventional resources ▪ Reuse of drainage water ▪ Desalination ▪ Rainwater harvesting (also using underground reservoirs) ▪ Wastewater reuse ▪ Grey water reuse ▪ Surface water mobilization and water transfer ▪ Artificial recharge ▪ Drought wells (for relief purposes)	*Increase Water supply/ Mobilization of additional water resources*
	▪ Drip irrigation ▪ Irrigation Management ▪ Introduction of new seeds in agriculture	*Agricultural practices*
	▪ Water saving measures ▪ Water consumption reduction ▪ Leakage reduction	*Demand management*
Institutional	▪ Water Users Associations used for water management	

[5] Morocco did not participate in the workshop.
[6] Morocco even though did not participate in the workshop was requested to fill in Q1 Country Questionnaire

Setting	▪ Water Users Association in Jordan Valley ▪ High Land Water Forum ▪ Supporting water harvesting financially and technically
Legislative, Integration/ Internalization	▪ National Plan ▪ National Master Plan ▪ Actions for the environment ▪ National Action Plan for the environment and sustainable development (PNAE-DD) ▪ Established legal framework for mobilizations of water resources
Social	▪ Awareness campaigns ▪ Awareness for water saving and wastewater reuse

Table 4: Identified weaknesses, constraints and bottlenecks in the PCs in relation to Drought Risk Management

Technical Aspects: poor or bad practices, non-recovery issues	▪ Water head losses ▪ Intense irrigation ▪ Overpumping- overexploitation ▪ Illegal wells ▪ Unsuitable cropping patterns ▪ Low water tariffs ▪ Water rights trading ▪ Reuse of drainage water (from a quality point of view) ▪ Low use of treated wastewater (wastewater reuse) ▪ Not capturing rain lost in the sea
Institutional Setting	▪ Lack of interdisciplinary approaches ▪ Poor stakeholders' participation ▪ Engendering Men (agriculture) ▪ Inadequate planning of water allocation
Legislative, Integration/ Internalization	▪ Fragmentation ▪ Poor mainstreaming ▪ Non-institutionalization of best practices ▪ Scattering of roles and responsibilities
Social	▪ High vulnerability
Natural factors/ conditions	▪ Dominant climate type: desert climate ▪ Soil vulnerability

Table 5: Identified Needs and Priorities of the PCs and their links to the DRMM steps

DRMM steps	Highest Priority (+++)	Medium Priority (++)	Lower Priority (+)	Over-arching Priority
Step 1: Develop a Drought Risk profile (DRP)	▪ Integrate socioeconomic issues ▪ Connecting all water uses to the national water system	▪ Criteria about drought ▪ Calculate indices ▪ Data analysis and reporting		Technical knowledge and

	▪ Drought characterization ▪ Drought monitoring ▪ Drought indicators ▪ Vulnerability assessment	▪ Analytical tools for drought monitoring ▪ Runoff surface water monitoring		
Steps 2-3: Identify and Prioritize Drought Risk Management (DRM) options	▪ Collect the rainwater ▪ Drainage water treatment	▪ Managing the runoff and urban drainage ▪ Infrastructure for water retention ▪ Improving knowledge and warning systems ▪ Insurance ▪ Early warning systems		
Step 4: Internalize Drought Risk Management (DRM)	▪ Legal framework ▪ DRM Plan ▪ International Drought Declaration ▪ Policy and Plans ▪ Legislation for crisis management ▪ Awareness raising for water management for public and decision makers ▪ Users' involvement	▪ Institutional development ▪ Drought Plans ▪ Financial Support ▪ Capacity Building ▪ Define ways to integrate drought risk management to the decision support system ▪ Capacity building	▪ Drought Policy and Mainstreaming ▪ Creating an Agency for drought management ▪ Water users' awareness ▪ Awareness	

Table 6: Relevant follow-up activities/requests for the SWIM-H2020 SM regional activity on DRMM

Country	Regional Activities	Peer-to-peer	Study Tour
Algeria	Since the early 2000s, the Algerian government has taken important measures to get out of the water scarcity that affected the country (National Strategic Plan). The new water policy has been structured around two strategic axes: (a) development of hydraulic infrastructure (dams, transfers, seawater, desalination plants, sewage treatment plants, etc.); (b) institutional reform of the water sector to promote better management of the resource. The following activities for integrated drought risk management are of interest: ▪ Define the means and policies for managing drought risks; ▪ Mapping of vulnerability and degree of exposure to drought; ▪ Adoption and dissemination of the proactive approach required in the case of drought risk management; ▪ Methodology for the development of drought a risk management plan; ▪ Capacity-building for water resource management and strengthening of governance between sectors; ▪ Strengthen institutional, organizational and technical capacities related to governance and integrated water resource management	Need for: ▪ Strengthening on the the dissemination of information and on the follow-up of projects and ideas related to drought risk management	Rely on the SWIM-H2020 SM expertise in the field to choose the site
Egypt	▪ Workshop on coordination and cooperation mechanisms for all stakeholders (local and regional) with a focus on DRM internalisation. All kind of interactions, role playing games, interventions, etc. ▪ Training of national specialists on the development of technical socio-economic indicators to be used in DRM ▪ Development of an Handbook/Manual on DRM internalisation ▪ Create a website (in 3 languages) with all expertise, success stories, good practices, failures from the region/ PCs experiences on DRM. This website could be also used for data exchange and sharing (?)	Need for: ▪ Environmental and water sector linkages (learn more on how these linkages started, how they were institutionalised, etc.)	
Jordan	▪ Training on drought characterisation using indicators ▪ Training on mapping drought vulnerability ▪ Training on how to use the WEAP in simulating/ testing measures	Need for: ▪ peer-to-peer on mainstreaming DRM ▪ Peer-to-peer on using WEAP to test measures	Related to drought characterisation and the developme

		Can offer: ▪ peering on groundwater vulnerability and protection (e.g. Palestine), peering on ▪ GIS applications in watershed management	nt of indicators
Israel	▪ Development of drought indices, other than the SPI that is currently available (for example for hydrological and agriculture droughts)	Can offer: ▪ Israel has an operational early warning system for drought based on seasonal precipitation input. The system can be further improved presenting also soil moisture and stream flow based on ECMWF and CFS forecast. Shafting of this experience and possible inclusion of other PCs in the system	
Lebanon	▪ Training on Drought Risk Profile (local application) ▪ Developing Drought Risk Profiles using existing models or the WEAP ▪ Develop a regional product on Drought Vulnerability ▪ Develop a regional website for exchange of best practices and data	Need for: ▪ Assisting in the development of a Drought Risk Profile in a selected pilot area	Visit a country that has developed a drought risk profile
Palestine	▪ Drought Hazard mapping ▪ Vulnerability analysis and assessments in relation to drought, rainfall and its effect on groundwater and vegetation cover ▪ Drought Risk Profiling and identification of drought risk indicators (drought characterization indices) ▪ Changes in the runoff recharge / flood ▪ Workshops on the above topics. Nature of workshops: interactive, exercises, presentations, case studies, group work, focus groups ▪ Development of joint regional products: a regional drought monitoring system, a	Need for: ▪ Drought characterization with suitable indices ▪ How to apply drought prediction models	Visit a country that has similar groundwater conditions with success stories of drought risk manageme

	regional data exchange system		nt
Tunisia	▪ Tunisia has a Drought Risk Management (DRM) guide, which deals with the methodological aspect and mechanisms of DRM, as well as past experience of previous events. However, an action plan based on this guide that includes several steps is required. To this end, it was proposed to address the 1st step of the DRMM method, namely the choice of indicators to be adopted for declaring the drought alert. ▪ The involvement of civil society is necessary for DRM in the context of good governance. A workshop is proposed to bring together the participating countries to discuss mechanisms for civil society participation in DRM	Need for: ▪ DRM indicators ▪ Methods/ approaches to involve the civil society in DRM	Visit a country with similar conditions as Tunisia (e.g. Spain, Jordan).

4. EVALUATION OF THE WORKSHOP

Two categories of indicators have been used to evaluate the workshop: a) impact indicators, reflecting the direct impact of the workshop, and b) evaluation indicators, reflecting the assessment of the technical quality of the workshop, and the quality of the workshop's logistics/ organisational aspects, as perceived by the participants. The indicators and associated ratings are presented in Tables 7, 8 and 9 respectively, while the responses' classification is presented in Figures 2-4.

Table 7: DRMM Workshop Impact Indicators (reflecting the impact of the workshop)

Workshop participation	
Total No. of participants from the PCs	16
Number of PCs that were represented	7/8
Gender balance (% of women participants from the PCs)	37.5%
Collection and consolidation of regional information	
No. of completed Q1 (Country Questionnaire on DRM) received by the PCs	5/8
Changes in awareness, knowledge and skills	
% of participants that were aware of the DRMM concepts prior to the workshop	13%
% of participants that were aware of the DRMM concepts after the workshop	50%
% of participants with improved knowledge on the main Drought Hazard characteristics (comparison between pre and post-workshop)	13%[7]
% of participants with improved knowledge on the main components of Drought Risk (comparison between pre and post-workshop)	25%[8]
% of participants with improved knowledge on the difference between proactive and reactive Drought Risk Management (comparison between pre and post-workshop)	50%[9]
New acquired knowledge	
% of participant who correctly identify the elements needed to develop a Drought Risk Profile for a given area	100%
% of participant who correctly identify main parameters which contribute to increase Vulnerability to Drought	44%

[7] 25% had this knowledge prior to the workshops vs. 38% after
[8] 56% had this knowledge prior to the workshops vs. 81% after
[9] 31% had this knowledge prior to the workshops vs. 81% after

% of participants who are well aware of the main categories of measures that can be implemented to reduce water scarcity	94%
% of participants who correctly identify proper criteria to be used when selecting/ prioritizing mitigation measures and relevant targets	56%
% of participants who correctly identify key elements to be considered to enable the actual implementation of the drought mitigation measures and targets	81%
Activities enhancing a common regional approach	
A Concept Note proposing specific activities on DRMM for the regional level is collectively developed jointly with the countries	Y
A brainstorming/discussion towards the development of regional products on DRM is initiated among the PCs	Y

Table 8: DRMM Workshop Evaluation Indicators (reflecting the assessment of the technical quality of the workshop as perceived by the participants)

Diversity of the workshop presentations and activities	
No. of presentations on international country examples (sharing of experiences, good practices, etc.)	7
No. of training-oriented presentations (on concepts, methodologies, etc	4
No. of participatory activities (open discussions, brainstorming sessions)	3
Rating of the technical quality of the workshop (average scores)	
Adequacy of the presentations (presentations correspond to the planned objectives and enhance shared understanding)	3,15 / 4
Clarity, coverage and sufficiency of concepts, objectives, anticipated outputs and outcomes	3,16 / 4
Usefulness of the distributed material	3,24 / 4
Efficiency and effectiveness of the facilitation	3,40 / 4
Overall rating of the event	3,53 / 4
% of participants that reflected that all the topics necessary for a good comprehension of the subject were covered	65%
% participants who reflected that they acquired some new knowledge	90%

Table 9: DRMM Workshop Evaluation Indicators (reflecting the assessment of the quality of the workshop's logistics/ organisational aspects as perceived by the participants)

Rating of the quality of the workshop logistics/ organizational aspects (average scores)	
Appropriate handling of invitations, visa support, information sharing and smoothing obstacles	3,75 / 4
Efficient logistics: accommodation, transportation, location of venue and interpretation	3,45 / 4
Provision of support (if requested) for participants' preparation for the event	3,65 / 4
Efficient and effective follow-up of preparations and progress towards the event	3,65 / 4
Planning for the event: selection and design of methodology, programme/daily agenda and work rules	3,16 / 4
Smooth flow of programme, efficient handling of emerging needs and attentiveness to participants concerns	3,28 / 4

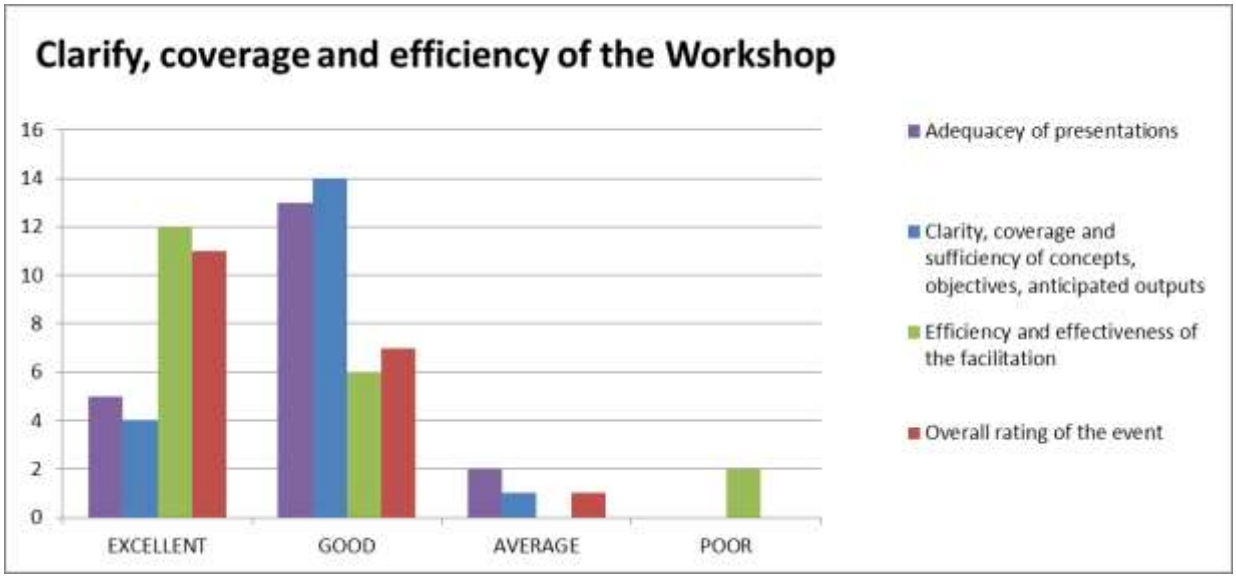

Figure 2: Classification of participants' replies to the indicators reflecting the technical quality of the workshop

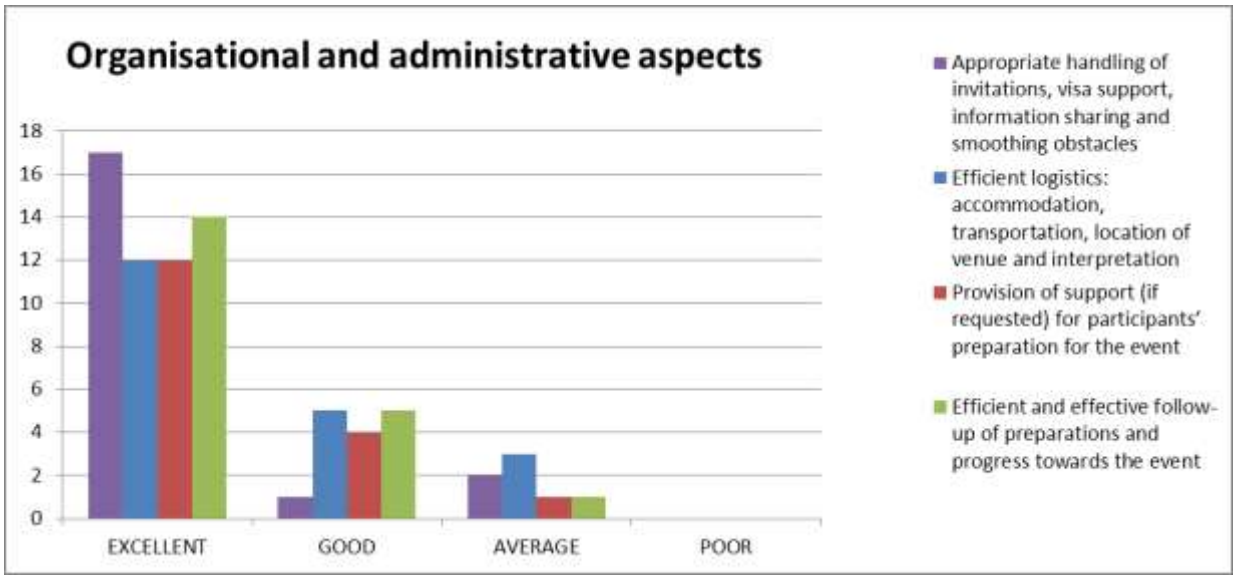

Figure 3: Classification of participants' replies to the indicators reflecting the quality of the workshop quality of the workshop logistics/ organizational aspects (part 1)

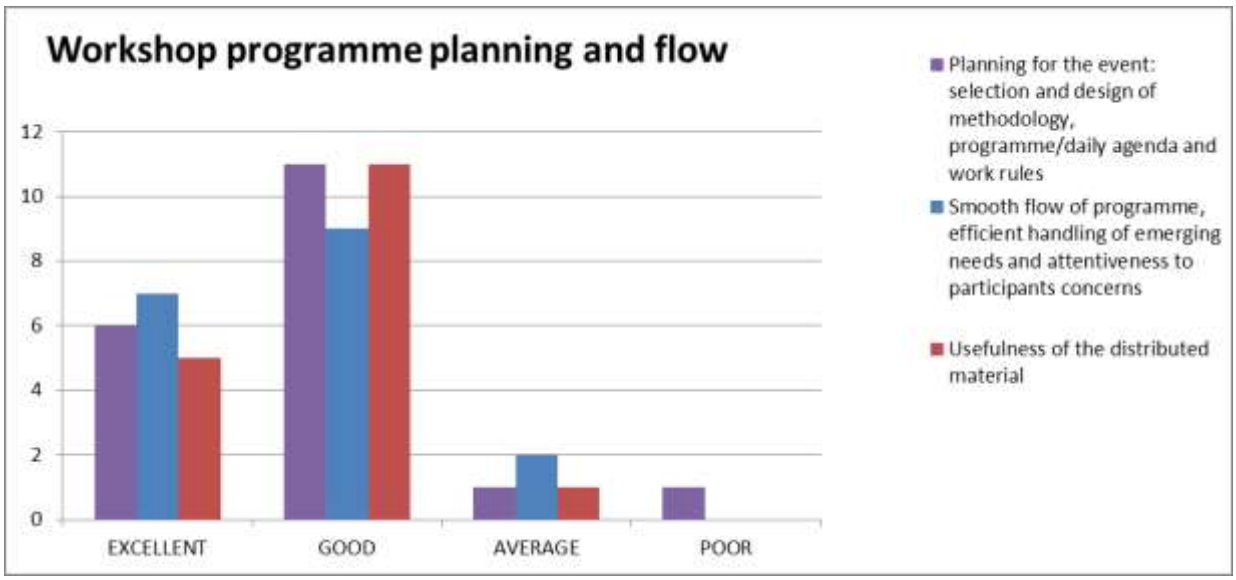

Figure 3: Classification of participants' replies to the indicators reflecting the quality of the workshop quality of the workshop logistics/ organizational aspects (part 2)

5. CONCLUSIONS AND RECOMMENDATIONS

Evaluating the results presented in Chapter 3, it is concluded that the expected outcomes of the workshop (as planned in the design phase) have been achieved (refer to Table 9 below).

Table 9: Level of achievement of the expected outcomes of the regional training

Expected Outcomes as defined prior to the workshop	Have they been achieved?
High-level key stakeholders are introduced to the main concepts and underlying principles of drought risk management (e.g. proactive vs. crisis management, risk mainstreaming, etc.), and familiarized with the various methodological steps to be followed;	YES
High-level key stakeholders are aware and engaged in the identification and design of specific activities that can support DRM Mainstreaming;	YES
A regional dialogue on drought management issues is initiated between decision makers, experts and international technical experts, across key sectors, establishing the basis for the development of synergetic activities, regional cooperation, etc.	YES
Priority themes/areas on DRM Mainstreaming, to be supported through SWIM-H2020 SM regional activities (linked also to the Expert Facility as applicable), are further elaborated during the meeting, on the basis of the countries' specific needs, new knowledge, and the participatory process with the stakeholders.	YES
The peer-to-peer process for experience sharing at the regional level and knowledge transfer (south-to-south, north-to-south) around DRMM is launched, and priority themes/areas defined.	YES

A very good representation of PCs in the training was achieved by the SWIM team with a fair representation of women participants from the PCs. The participants were very active during the interactive sessions, engaged with the topics and their contributions to the discussions were very extensive and valuable.

A lot of invited PCs (Algeria, Egypt, Israel, Palestine and Tunisia) completed Q1 questionnaire in advance so they came to the meeting more informed. As such they had already thought about their practices and their challenges and thus could bring a richer set of questions or specific topics for discussion.

Regarding the workshop coverage, 35% of the participants reflected that all the topics necessary for a good comprehension of the subject were covered, 30% reflected that some additional topics could have been included, while 22% reflected that some topics covered were not necessary (13% did not reply to this question). The majority of the participants (85%) found the level of difficulty of the workshop adequate.

Participants with a background on the subject (13%) had the opportunity to explore its potentials, while those with a limited background are now enlightened on what it entails.

Results before and after the training indicate success in conveying specialized technical information to participants and an improved knowledge and raised awareness on the DRMM concepts, the main Drought Hazard characteristics, the main components of Drought Risk and the difference between proactive and reactive Drought Risk Management.

The participants were highly satisfied as reflected in the evaluation, both with the technical aspects, as well as with the training organization aspects, as indicated by the logistics' evaluation.

Recommendation and future steps:

The majority of the participants (65%) felt that the workshop length was shorter than required, while another 30% felt it was adequate. The participants also indicated that they were pleased to have interactive sessions, and they would even further encourage more time for interaction among small groups with working examples. It is recommended that the length of the future workshops and the inclusion of more interactive/ working group sessions will be carefully planned.

The participants indicated that among the most valuable things they learned during the workshop were the concepts of DRM, the usability and issues around the selection and use of drought indices, as well as experiences of other countries. Along the same line, the participants indicated that among the thing they liked most in this workshop was the designed peer-to-per process, meeting with others from different cultures and learning from experience from different countries. It is thus recommended that the latter is fortified, since deemed very beneficial, and supported by the subsequent regional activities of DRMM.

The participants indicated that they gained good knowledge which can assist them in their future work on the subject, namely in preparing DRMPs at national level, but also in pursuing new ideas for more integrated planning activities and in having established new contact to share experience. It is recommended that the PCs capitalize on this first regional exchange and further pursue the realization of steps of the DRMM and the exchange with their peers from the region, towards building a Community of Practice, and supported by the SWIM-H2020 SM.

Knowledge transfer and dissemination are very important aspects of capacity building. The participants indicated that they will transfer the experienced gained during the workshop to their colleagues though reporting, presentation and/ or workshop with colleagues and stakeholders in their countries. It is highly recommended that the participant's follow-up on this and that they pursue this action.

Table 9: Follow-up questions to the participants

Follow-up questions	Most popular answers
What is the most valuable thing you learned during the workshop (knowledge or skills)?	▪ Drought Risk Managament Planning and its concepts ▪ Drought Indices ▪ Experience of other Countries
How do you think that the current event will assist you in your future work on the subject?	▪ Prepare DRMP at National Level

	▪ New ideas for more integrated planning activities ▪ New contacts to share experience
Whether (and how) you could transfer part of the experience gained from the event to your colleagues in your country?	▪ Report ▪ Presentation ▪ Workshop with colleagues and stakeholders in my country
What did you like most about this event?	▪ Meeting colleagues with similar job roles and responsibilities from different cultures ▪ Learn the experience from different countries ▪ The organization of the event, the quality of the presentations and the topics covered.
What needs to be improved?	▪ More time for interaction among small groups with working examples ▪ The duration of the workshop should be expanded.

Future steps:

- The SWIM team will compile all the Workshop information and will elaborate a Concept Note on targeted activities that could be implemented within the framework of the SWIM- H2020 SM Activity on “DRM Mainstreaming”, as a result of the meeting and follow-up discussions. This Concept Note will propose activities that can be implemented at the national and/or regional level to strengthen different components of DRMM.
- Upon completion of the Concept Note the SWIM team will implement the follow-up regional activities of the DRMM
- The PCs are strongly encouraged to be engaged in activities with their colleagues to share/ transfer the knowledge they gained during the workshop

6. ANNEXES

6.1 Agenda

Day 1

Item	Time	Description	Speaker
8:30 – 9.00		Registration	
#1	9:00 – 10:00	Welcome remarks	Stavros Damianidis (SWIM-H2020 SM Project Director, LDK)
		Presentation of the workshop objectives and agenda Distribution of Questionnaire Q2 (filling questions 1-6)	Suzan Taha (SWIM-H2020 SM Key Water Expert)
#2	10:00 – 10:30	Presentation of the findings of the Regional assessment of past drought episodes and their management in the SWIM countries	Suzan Taha (SWIM-H2020 SM Key Water Expert)
#3	10:30 – 11:00	Presentation of the findings of the assessment of past drought episodes and their management in Palestine	Ayman Rabi (SWIM-H2020 SM Water Non-key Expert)
	11:00 - 11:15	**Coffee Break**	
#4	11:15 – 11:45	Presentation of the findings of the assessment of past drought episodes and their management in Jordan	Suzan Taha (SWIM-H2020 SM Key Water Expert)
#5	11:45 – 12:30	Drought risk management: current approaches. Introducing the UNDP DRM Mainstreaming framework	Maggie Kossida (SWIM-H2020 SM Science-Policy Interfacing Non-key Expert)
	12:30 – 13:30	**Lunch Break**	
#6	13:30 – 14:00	Presentation of good practices and/or experiences on proactive drought risk management: Country example from Israel	Yaron Zinger, Director, Center for Water Sensitive Cities in Israel
#7	14:00 – 14:30	Presentation of good practices and/or experiences on proactive drought risk management: Country example from Spain	Jaime Fraile, Hydrological Planning Office, Segura River Basin Authority
#8	14:30 – 15:00	Presentation of good practices and/or experiences on proactive drought risk management: Country example from the United Kingdom	Victoria Williams, Senior Advisor (Drought and demand management), UK Environment Agency
#9	15:00 – 15:45	Open discussion on drought risk management approaches and good practices in the partner countries (inputs from the Questionnaire Q1)	All Facilitator: Maggie Kossida SWIM-H2020 SM Science-Policy Interfacing NKE)

			Rapporteur: Evie Litou (SWIM- H2020 SM Project Coordinator)
	15:45 – 16:00	**Coffee Break**	
#10	16:00 – 16:30	Presentation of the partners' countries requests (under the expert facility) and their links to the DRMM steps	Suzan Taha (SWIM-H2020 SM Key Water Expert)
#11	16:30 – 17:30	Open discussion Identification of the country needs and priority areas for action (brainstorming) (inputs from the Questionnaire Q1)	All Facilitator: Maggie Kossida (SWIM-H2020 SM Science-Policy Interfacing NKE) Rapporteur: Evie Litou (SWIM- H2020 SM Project Coordinator)

Day 2

Item	Time	Description	Speaker
#12	9:00 – 9:30	Presentation of good practices and/or experiences on proactive drought risk management: Country example from Italy	Bernardo Mazzanti, Technical Director, Arno River Basin Authority
#13	9:30 – 9:45	Plenary – recap of Day 1 and explanation of the training sessions	Suzan Taha (SWIM-H2020 SM Key Water Expert)
#14	9:45 – 10:45	*Training sessions (by topic)* Session 1: Definition of Drought Risk Profile (methods and tools, challenges)	Maggie Kossida (SWIM-H2020 SM Science-Policy Interfacing Non-key Expert)
	10:45 – 11:00	**Coffee Break**	
#15	11:00 – 12:00	Session 2: Design and simulation of mitigation measures, prioritization and decision-making	Demetris Zarris (SWIM-H2020 SM Water Non-key Expert)
#16	12:00 – 13:00	Session 3: Internalizing DRM into policy and development frameworks (preconditions, steps, obstacles)	Michael Scoullos (SWIM-H2020 Team Leader)
	13:00 – 13:15	Individual time to finalize the Questionnaire Q2 (15' mins)	All participants
	13:15 – 14:15	**Lunch Break**	
#17	14:15 – 14:30	Plenary: explanation of the breakout sessions	Maggie Kossida
#18	14:30 – 16:45	Breakout sessions: Elaborate on specific activities and PCs needs (in relevance to peer-to-peer experience sharing) Participants to be divided in two workgroups (WGs) WG1: Egypt, Jordan, Lebanon, Morocco WG2: Algeria, Israel, Palestine, Tunisia	Mediator WG1: Maggie Kossida (SWIM-H2020 SM Science-Policy Interfacing Non-key Expert) Rapporteur WG1: Demetris Zarris (SWIM-H2020 SM Water Non-key Expert) Mediator WG2: Suzan Taha (SWIM-H2020 SM Key Water Expert) Rapporteur WG2: Ayman Rabi

			(SWIM-H2020 SM Water Non-key Expert)
	16:45 – 17:00	**Coffee Break**	
#19	17:00 – 18:15	Plenary: Launching of the peer-to-peer process - Report back from the breakout sessions (15' per cluster) - Peer-to-peer: next steps and actions - Closing of the Workshop including workshop evaluation (15' mins) and photos	All Facilitator: Maggie Kossida (SWIM-H2020 SM Science-Policy Interfacing NKE)

6.2 List of Participants

		Name	Surname	Position	Organisation/Department	Country	Email
1	Mr	Hosam	ABOUESSA	Irrigation Management Gharbia	Ministry of Water Resources and Irrigation	Egypt	hoswater77@yahoo.com
2	Mrs	Ibtesam	ABUALHAIJA	Director of climate change and drought mittigation department	Ministry of Agriculture	Palestine	abuhaijaibtisam@yahoo.com
3	Mrs	Majeda	ALAWNA	Director WQ/ Pal DRM Focal point / Wash coordinator	Palestinian Water Authority	Palestine	malawneh@msn.com
4	Mr	Thair	ALMOMANI	Environmental Science and Management, M.Sc. / Department of Water Resources and Groundwater Protection	Ministry of Water and Irrigation	Jordan	momani72@hotmail.com
5	M	Bechir	BAKLOUTI	Chef de Service du Bureau de Planification et des Equilibres Hydrauliques	Ministère de l'Agriculture, des ressources hydrauliques et de la pêche	Tunisie	baklouti_bechir@yahoo.fr
6	Mme	Najoua	BOURAOUI EP MONASTIRI	Présidente	Association pour la Protection de l'Environnement et le Developpement Durable de Bizerte (APEDDUB)	Tunisie	najwa_bourawi@yahoo.fr
7	M	Farid	CHALAL	Chef Département Etudes et Synthèse	Ministère des Ressources en Eau et de l'Environnement	Algeria	chalalfarid@hotmail.fr
8	Mr	Stavros	DAMIANIDIS	Project Director	SWIM and H2020 SM	Greece	stavros@ldk.gr
9	Mr	Mufid	DUHAINI	Environment Head Service	Ministry of Energy and Water	Lebanon	mfd1965@hotmail.com
10	Mr	Jaime Loreto	FRAILE JIMÉNEZ DE MUÑANA	Chief of Service of the Hydrological planning office	Segura River Basin Organization	Spain	jaime.fraile@chsegura.es
11	Mr	Amir	GIVATI	Hydrological Service	Israeli Water Authority	Israel	Amirg@water.gov.il
12	Mrs	Heba	HASSAN	Civil engineer in the National Water Resources plan (NWRp)	Ministry of irrigation	Egypt	eng_heba20@yahoo.com

		Name	Surname	Position	Organisation/Department	Country	Email
13	Mr	Yasser	HUSSEIN	Head of Centeral Departement of Irrigation Advise Services	Ministry of Water Resources and Irrigation	Egypt	qotbyasser@yahoo.com
14	M	Ali	KCHOUK	Bureau de la Planification et des Equilibres Hydrauliques	Ministère de l'Agriculture, des Ressources Hydrauliques et de la Péche	Tunisie	alikchouk@yahoo.fr
15	Mrs	Maggie	KOSSIDA	Water Science-Policy interfacing NKE	SWIM and H2020 SM	Greece	maggie@ldk.gr
16	Mrs	Chara	KOTSANI	Technical Coordinator	SWIM and H2020 SM	Greece	cko@ldk.gr
17	M	Azzedine	LEMANAA	Board Member	Algerian Committee on Large Dams	Algeria	Azzedine.lemanaa@hotmail.com
18	Mrs	Evie	LITOU	Project Coordinator	SWIM and H2020 SM	Greece	eli@ldk.gr
19	Mr	Bernardo	MAZZANTI		Arno River Basin Authority	Italy	b.mazzanti@adbarno.it, b.mazzanti@gmail.com
20	Mr	Eric	MINO	Director	SEMIDE/EMWIS	France	e.mino@semide.org
21	Mr	Ayman	RABI	NKE	SWIM and H2020 SM	Palestine	ayman@phg.org
22	Prof	Michail	SCOULLOS	Team Leader	SWIM and H2020 SM	Greece	scoullos@swim-h2020.eu
23	Mrs	Suzan	TAHA	Key Water Expert	SWIM and H2020 SM	Jordan	taha@swim-h2020.eu
24	Mrs	Hana	TUBI	Director of Water for Agriculture	Ministry of Agriculture	Israel	HanaT@moag.gov.il
25	Mrs	Victoria	WILLIAMS	Senior Advisor	Environment Agency	UK	victoria.williams@environment-agency.gov.uk
26	Mrs	Hala	YOUSRY	Founding member	Egyptian Sustainable Development Forum (ESDF)	Egypt	halayousryy@hotmail.com
27	Mr	Demetris	ZARRIS	NKE	SWIM and H2020 SM	Greece	dez@ldk.gr
28	Mr	Omar	ZAYED		Palestinian Water Authority	Palestine	Ozayed2001@yahoo.com,
29	Mr	Yaron	ZINGER	Director of CRCWSC/ Marine Environment Protection Division	Center for Water Sensitive Cities	Israel	yaron.zinger4@gmail.com

6.3 Q1 - Country Questionnaire (consolidation of replies)

Section 1: General Facts about Drought and Water scarcity occurrence

1. **How often do** you experience drought episodes in your country?	DZ	EG	JO	IL	LE	MA	PS	TN
Once in 5 years		x		x				
Once in 10 years								
Once in 20 years								
Other (specify)	x[1]						x[7]	x[8]

[1]DZ: the frequencey of drought episodes is irregulate (2 or 3 years)
[7]PS: less than 5 years
[8]TN: 2 to 3 times per year during all 10 years

2. What is the relation between **Drought and Water Scarcity** in your country?	DZ	EG	JO	IL	LE	MA	PS	TN
Water scarcity is a permanent condition, and during drought events this imbalance between water resources availability and demand is exacerbated				x			x	
There is no water scarcity under normal conditions, but during drought episodes we are experiencing water stress conditions failing to meet the water demands	x							x
Other		[2]						

[2]EG: Water scarcity occurs in Egypt when drought episodes are hitting Ethiopia state, and that is evident from the water levels in water distribution in summer season crops

3. Which are the **main drought impacts** in your country?		DZ	EG	JO	IL	LE	MA	PS	TN
Economic Impacts	Crop production and yield losses	x	x		x			x	x
	Losses in livestock production		x					x	x
	Reduction of income from agriculture	x			x			x	x
	Losses in the production of manufactured goods and related income	x						x	x
	Disrupted food supply, increase in prices of food	x	x					x	x
	Impacts on navigation								
	Impacts on tourism				x				
	Impacts on forestry and fishery	x	x		x				
	Reduced energy production, increased energy prices								
	Reduction in the revenue of water supplier/ utilities							x	x
	Increase water price due to compensating measures	x						x	

	Cost of drought mitigation measures (associated with the use of alternative water sources, water transfers, new/ supplemental water resource development)	x	x		x			x	x
	Cost of environmental degradation		x		x			x	
Environmental Impacts	Decrease of available water resources (jeopardized minimum vital flow)	x			x			x	x
	Degradation of water quality (eutrophication, seawater intrusion etc.)		x		x			x	x
	Loss of wetlands	x			x				
	Loss of biodiversity and degradation of landscape quality								x
	Loss of species								x
	Soil erosion and Desertification	x						x	
	Increased risk of forest and range fires	x			x			x	
	Changes in river morphology (terraces, gullies)	x			x				
	Ground subsidence								
Social Impacts	Water shortage & interruptions (frequency, duration, extent) due to deficiency in public water supply	x						x	x
	Drinking water quality safety issues		x					x	x
	Public safety and Health (low-flow related problems such as diminished sewage flows, etc.)							x	
	Rising conflicts between water users		x		x			x	x
	Reduced quality of life, mental and physical stress, discomfort	x						x	x
	Inequities in the distribution of impacts	x						x	x

Section 2: Monitoring and Assessment of drought and water scarcity

4. Do you **monitor drought** in your country? If yes, which parameters/indicators do you monitor?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
No monitoring								
We monitor precipitation (and deviation from average conditions)	x			x			x	x
We monitor streamflow (and low flows in the rivers)	x	x[2]		x			x	x
We monitor water level (in lakes and/or reservoirs)	x			x				x
We monitor groundwater level	x			x			x	x
We monitor soil moisture	x							
We monitor vegetation index				x				
SPECIFIC INDICATORS				SPI			PDI, calculated by	

							RMD	

[1]EG: We monitor streamflow through the water distribution system at main and branch canals, and we can observe a decrease in water level over the years (and they are often used pumping stations for re-use of agricultural drainage water in irrigation process)

5. Do you **monitor and record water use** per sector/ user category (i.e. domestic, agriculture, livestock, industry, tourism, etc.)	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
No monitoring of water uses at all								
Yes, we monitor some sectors and record the data (specify which ones) …..……	Potable, irrigation[1]	Irrigation[2]					domestic	potable, Irrigation
Yes, we monitor all sectors, and we record all data				x				

[1]DZ: In the domestic sector the distribution/supply and consumption of potable water. In the agricultural sector the irrigation

[2]EG: The irrigation sector has a database of water levels, which have been distributed during the season crops year-round record

6. Is the **recorded water use** per sector/ user category (i.e. domestic, agriculture, livestock, industry, tourism, etc.), complete? Is water use **estimated or metered**?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
Water use records are complete		x		x				
Water use record are incomplete	x						x	x
Water use is metered				?			x	x[8]
Water use is estimated	x	x[2]		?				x[8]

[2]EG: water use is metered by relationship between crops' actual water consumption and crops' types.

[8]TN: Water use is measured (irrigation from dams, drinking water from dams and groundwater). Water use is estimated (irrigation from groundwater)

7. Have you performed an **assessment of Drought Risk (Hazard x Vulnerability)** in your country?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
Yes	x							
We have only assessed the hazard (drought frequency, duration, severity)				x				x
We have only assessed the vulnerability (how vulnerable is the system if a drought occurs)								
We haven't assessed neither the hazard, nor the vulnerability		x						

8. Have you performed a **detailed assessment of freshwater resources availability**? Has the actual potential for each of the water sources and the water supply coverage been estimated under extreme drought conditions?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**

No		x						
Yes, but for some freshwater resources (specify which ones)	x[1]							
Yes, for all freshwater resources (rivers, lakes, groundwater, springs)				x				
Only for non-conventional water resources (reused waste water, desalinated water, etc.)								
Yes, for all freshwater resources and non-conventional water resources as well							x	x

[1]DZ: Barrages, eaux souterraines et zones humides

9. Can **priority water demands** (e.g. drinking water) be met throughout the available water resources during a severe drought?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
No	x	x[2]						
Yes (specify which ones) ……				x[4]				x[8]
We don't know							x	

[2]EG: Priority water demands will surely be affected
[4]IL: Drinking water
[8]TN: By means of economic measures (e.g. limiting irrigation, rationing ...)

Section 3: Managing Drought Risk – the current state

10. Has the water system experienced significant drought management **problems in the recent past** (within the past 7 years)? How would you characterize the **system's level of risk**?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
No, the water system did not experience any significant drought management problems recently								
Yes, with a low level of risk (i.e. minor disturbances of the users)								
Yes, with a medium level of risk (i.e. some disturbances to some users). *Specify which ones* ……		x[2]						x[8]
Yes, with a high level of risk (i.e. significant disturbances and supply cuts to many users)	x			x			x	
Yes, with a very high level of risk (i.e. the drinking water supply was threatened, major supply cuts)								

[2]EG: especially farmers at the end of canal
[8]TN: drinking water and irrigation

How would you summarize the reaction of the affected users? (e.g. they were tolerant, they did comply with the imposed measures/ restrictions, they didn't comply, they were many conflicts, they looked for alternative sources, etc.)

DZ	Les usagers touchés n'ayant pas beaucoup de moyens à leur disposition pour remédier aux perturbations dans l'alimentation en eau, surtout potable, ont été contraints de recourir à leur propres moyens (l'installation de citernes d'eau, tonneaux…)
EG	Their reaction is to comply with imposed measures but they are looking for alternative sources as reuse drains water

JO	
IL	In general the users comply even not everyone agreed with the government steps. The users looked for alternative sources
LE	
MA	
PS	There are many conflicts and people want water as we couldn't respond to the demand. Prices were high, especially for the vulnerable, communities. Alternative resources: Reuse of treated wastewater for agriculture and desalination of brackish and sea water, and reallocation of the water resources use. Water Harvesting: Construction of dams, cisterns , reservoirs, earthy bonds, for Agriculture.
TN	Généralement, une prise de conscience de la population des conséquences de la sécheresse ce qui a permis d'améliorer l'efficacité des actions menées. Cependant des manifestations ont lieu dans certaines régions rurales lors des périodes de pointe de consommation.

11. How would you characterize **your country's approach** to managing drought?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
Rather re-active (crisis management – when the drought comes we try to alleviate the symptoms)	x	x					x	x
Rather pro-active (risk management – we focus on mitigation and adaptation measures in order to increase the resilience of the affected systems/ communities)				x			x	x[8]
Other (please specify) ……								

[8]TN: For certain aspects: mobilization of water resources, inter-regional transfers, national program for water saving .....

12. Do you have a **Drought Risk Management Plan** (DRMP) in your country?	**DZ**	**EG**	**JO**	**IL**	**LE**	**MA**	**PS**	**TN**
No								
Yes				x				x[8]
It is currently under development (please specify the expected date of finalization) ……..							x[7]	
No, but it is foreseen in the future. We are doing some preliminary steps and relevant activities in order to initiate a process for developing one (please specify) …….....	x[1]	x[2]						

[1]DZ: There is a plan for the mobilization of water resources and a management plan for this resource. For risk management, an intersectoral approach is undertaken

[2]EG: participation in SWIM-H2020 SM training - and after that we can transfer the information to decision-makers in Egypt

[7]PS: Expected date of finalization: by 03/2017

[8]TN: A drought management guide that presents the methodological approach to drought management by identifying key indicators and mechanisms for drought management. In the event of an alert, a National Commission that is composed of all decision makers and beneficiaries develops the action plan. This plan is prepared in close collaboration by the National Commission, the Regional Committees and the Sectoral Committees.

13. About your **Drought Risk Management Plan (DRMP)** (existing, or under development, or foreseen in the future)		DZ	EG	JO	IL	LE	MA	PS	TN
1	What is the scale of the plan? (national, local, river basin, city, etc.)		It is local		National and River basin			National	National and Regional
2	Is it a stand-alone plan or is it part of another plan/strategy? If the latter applies, please indicate which one		is it part of another plan It's a national plan in Egypt to participate in water management between the state and water users to rationalize consumption and equitable distribution of water between users		part of another plan/strategy, part of the national water master plain			Part of other Plans	Autonomus
3	Was a task force, commission or other stakeholders' group created to develop the plan? If yes, is it currently active and fully operational?		Yes, teams were established under the umbrella of water users associations but they need more time for training and further possibilities		There is a "drought" team at the water Authority			Yes, Active	National Commission in collaboration with Regional Committees and Sectoral Committees. The commission develops the action plans and oversees their implementation during the drought period
4	Does the plan include a statement of purpose, goals or objectives and intended results to be achieved? Please briefly describe them.		yes the plan of water users associations in my country include main purposes as rationalize consumption and equitable distribution of water between users and prevent water		Yes. The goal is to operate the water resources in stable condition, above the red line.			yes	The objectives of the plan are in order of priority: 1- Securing the supply of drinking water 2- Preserve livestock 3- Saving of the arboricultural heritage

			polution and integrated managment of water between goverment and stakeholders.						(olive grove, almond tree, palm trees, orange trees, ...) 4- guarantee at least some of the production of strategic crops (cereals, potatoes, tomatoes, ...)
5	Are priorities and targeted water users identified? If priority water uses are identified, which ones are they?		that priority is provide drinking and agriculture water and it is water clean and enough		Drinking water and them agriculture.			yes	Driking water
6	Is there an adequate description of the system in terms of water sources, treatment capacity, interconnections, contract limitations, permit limits, etc.?		water user association has a local laws include how them control on the another water user and adjust Their behaviors about over using water They do it through the cooperation with Local officials		Yes			no	Yes, it is adequately described
7	Have you considered future climate and socio-economic scenarios which can lead to changes in water availability and water demands?		sure that will occur and all our see that now In different countries, especially in Africa, disputes over water		Yes			yes	The strategic study of water horizon 2030 took into consideration the availability and the needs in this horizon taking into consideration: -Climate changes.

									-Demographic data
8	Have drought trigger points and alert levels being identified?		Not now, maybe in the future		Yes. Red lines				Yes For example, precipitation during the months of September and October, stocks at dams, ...
9	Have the critical environmental/ low-flow requirements (to meet downstream ecosystem needs) been determined?				Yes				The decline in water reserves at dams, lakes and sebkhas leads to an increase in salinity, temperature and turbidity of water, as well as the dominance of wastewater, the reduction of dissolved oxygen in water. These conditions create a biological imbalance that results in a high mortality of fauna and flora and the proliferation of insect pests
10	Have alternative sources of water supply (in the event that the system's primary sources become inadequate) been identified? Has the government undertaken efforts to develop an additional source(s) or to discuss with the state/governorates' or regional authorities the use or		yes that can be under ground water and waste water treatment and Desalinated water sea. the government in egypt is undertaken some activities For example as pumping stations building to Drains water reuse		Yes. The IWA lead a an integrated water management approach			Not specifically	-Recours to strategic stocks of far-north dams -Desalination of brackish groundwater -Desalination of seawater for drinking water -Treated wastewater for irrigation.

	allocation of water to existing uses?								
11	Does the plan specifically identify responsibilities and allocate roles among the relevant stakeholders/ actors? Please briefly describe these roles/ governance structure		There is a law sets out the relationship between the stakeholders and the government that includes the water users associations to monitor the various activities on the water canals and the government to take legal measures to ensure implementation of the priorities of water WUAs example of this pollution prevention and equitable distribution of water among users					Yes	National Commission: representatives of the Departments of Agriculture, Finance, Health, Environment, Trade, Development of measures, coordination of operations. Sectoral Committees: Prepare drought indicators, action plans and scenarios. Water Resources Management Committee, Livestock Safeguard Committee, Cereal Sector Management Committee, Arboreal Sector Management Committee. Regional Commissions: representatives of the various regional services of the Ministry of Agriculture, regional directorates of other ministries, and representatives of the farmers' union
12	Has someone been		yes it is a mentoring		Yes. IWA allocate				The National

	designated as having the responsibility to make decisions and coordinate the stakeholders and actors?		Water Engineer		the amount of water to the different users. All the regulation comes from IWA.				Commission chaired by the Minister of Agriculture
13	What type of measures does you plan include? Technical (supply increase, demand reduction/conservation and efficiency measures)? Legislative? Regulatory? Economic Policy? List some		the type of measures included in the plan are search about innovative means to Reducing water consumption by new irrigation ways and Different crops need for the consumption of little water as well as increase awareness of water users					Technical Legislative	Technical: -Simulation of water management of dams -Recours to the strategic reserves of water stored in the dams of the extreme north and their transfer to the big urban centers. -limitation of quotas allocated to irrigated areas, limitation of irrigated areas. -limited washing of cars. - drinking water management -use of emergency boreholes for drinking water -incentives for the exploitation of treated wastewater -fitting of drinking troughs, water points for livestock -Deepening and equiping the wells -distribution of towed

									tanks for rural drinking water and supplementary irrigation -Incentives forwater saving and campaigns to limit leaks. - measures to safeguard the arboreal heritage, in particular olive and almond trees: irrigation, severe size, ... -opening of pastoral reserves Economic policies: - subsidies for foddeer products -importing food for livestock -aid in kind for small and medium-sized farmers -credit for the financing of forage crops
14	Has an analysis of the cost-benefit and effectiveness of the suggested measures been undertaken?		It has been utilized to reduce conflicts between water users		Yes, but not deeply			?	The plan mentions the cost of the measures
15	Have monitoring and enforcement procedures been outlined that can be implemented from a practical standpoint? Have you		It will be the transfer of water management on some canals experimental models to determine the benefits of this plan or do		Yes.			?	The implementation of the plan is supervised by the aforementioned Commissions

	foreseen adequate enforcement and follow-up of the suggested measures?		not benefits						
16	Have the ordinances/policies, stand-by rate structures, process provisions allowing for drought declarations and various levels of response been duly adopted by the local government/water system				Yes			MOA	-Installation of a preferential tariff for irrigation water for cereals and forages
17	Have you specified any indicators to monitor the implementation of the plan/ measures, the impact and degree of fulfillment of the goals/ targets (evaluation of success)?				Yes. We have set of indicator for the hydrological conditions each year.			Yes	No
18	Does the plan account for the necessary processes to modify and updating it?		Yes you need to update, but after knowing the results of the current models implemented		Yes, every 5 years			MOA	Rapid exchange of information between the National Commission and the Regional Committees that facilitates decision-making and the speeding up of actions.
19	Have public hearings or meetings (i.e. public consultation) been held to receive the feedback necessary to develop, evaluate and/or modify the plan?		Yes, we are holding meetings and plenary sessions meeting between water users and the staff of the irrigation needs to collect and implement them possible		Yes. We have public form for water			Yes, directly with MOA	The farmers' union and the user associations are represented in the Regional Commissions.
20	If you have already implemented the DRMP, did the plan (management phase,				Not in 100%. The reduction in water resources was			X	A note of conjuncture is established by the agricultural, economic

	media releases, measures monitoring, etc.) work as anticipated? Were water reduction goals achieved? Did users/ the public believe the plan was equitable and fair?				much stronger then was projected in the plain. Not all the users thought it was equitable				and hydrological services. This alert is forwarded to the Minister of Agriculture. He calls on the National Commission to study the conjucture, to declare drought and to draw up a plan of action.
21	What was the greatest challenge of developing the DRMP?		.		Estimating the future trends and amount for the natural water resources			Harmonization and coordination with all Relevant stakeholders	Budgetary and socio-economic constraints
22	What was the greatest challenge of implementing the DRMP?		The biggest challenge is the weak awareness of water users		Budget			Calculating the Indices	The majority of farmers, 80%, consists of small and medium-sized farmers. This category is generally vulnerable to drought.

Section 4: Managing Drought Risk – Constraint and Gaps

14. Which are the **main constraints & gaps** in effectively managing drought risk in your country? (you can select more than one)

	Technical[10]	Legislative & regulatory[11]	Institutional[12]	Coordination[13]	Financial[14]	Public involvement, equity and acceptability[15]
DZ	There's a bit of all that. The participatoyy approach is absent; Lack of project cycle management; Lack of monitoring and control; No evaluation either mid-term or post-project			There is a bit of all that. The issue is inherent in good governance. There is an absence of intersectorality. National plans or plans are well done at the national level, however, they do not have accompanying tools for their application at the local level, for example.Manque de communication et orientations.	The budgets allocated are often inadequate	The public is not involved in decision-making. The approach is often vertical downward (decisions taken in the high sphere), we always come back to the problem of governance.
EG	Major constraints to manage the risks of drought in my country think it is the lack of		I think the lack of a dedicated competent team to develop a national plan to reduce			

[10] Technical: e.g. lack of technical knowledge and in-depth expertise, lack of necessary monitoring infrastructure, inadequate characterization of the hazard, confusion in the purpose and objectives of DRM, lack of in-depth assessments of the cost-effectiveness and suitability of the potential measures, etc.

[11] Legislative & regulatory: e.g. lack of relevant policy, regulatory texts, guidance/ implementation documents, etc.)

[12] Institutional: e.g. lack of competent authorities & responsible actors, lack of a dedicated "drought task force", confusion in roles allocation, poor enforcement and control, etc.

[13] Coordination: e.g. responsible actors do not successfully coordinate among them, a proper coordination mechanism among stakeholders at different levels is lacking, lack-of interest, conflicts of interest, etc.)

[14] Financial: e.g. action plans on managing drought risk do exist but there are no financing mechanisms and/or sources to implement them)

[15] Public involvement, equity and acceptability: e.g. coherent DRM plans exist but the foreseen measures are not acceptable by the general public, public involvement/participatory decisions had not been pursued, etc.)

	knowledge and lack of awareness of the dangers of drought to develop a plan to reduce the risks as well as the lack of hardware necessary for the implementation of this plan		the risk of drought			
JO						
IL	The main constrain is not having reliable forecasts regarding the expect conditions of the water resources. It makes it hard to plain investments witch such big uncertainty				Significant financial constrain is the coast of treated and desalinated water, especially for agriculture	
LE						
MA						
PS	• Insufficient technical knowledge and in-depth expertise, • lack of necessary monitoring infrastructure, • The current metrological situations in Palestine a) limited number of meteorological stations, b) inefficient distribution of low technology stations and rain gauges in the semi-coastal and central highland agro-ecological zones, c) lack of data and information for historic records.	guidance/ implementation documents, enforcement of laws is needed (laws and legislation are present)	Institutional reforming, adoption of good governess and participatory approaches, and technical and human building capacities need substantial financial resources which are considered one of the important difficulties in updating and formulating policies and strategies. These approaches of reforming and good governess need a clear	Need to strengthen cooperation and coordination among the relevant stakeholders	Very limited financial resources is available to implement any Plan Depend on projects and availability of funding	the public prospective is making such changes difficult to be accomplished especially with the weak participation and incorporation of civil and public sector in this process.

	• inadequate analytical tools for drought monitoring • the lack of scientific and technical knowledge bases is another constraint to achieve the comprehensive disaster risk reduction, starting with hazard and risk assessments, vulnerability analysis and ending with preparedness, response and recovery processes.		commitments and wills from the policy makers and decision makers where political complication interacts and hinders the implementation of such approaches			
TN	- Lack of knowledge and low ability to forecast exceptional events (droughts and floods). - increase the retention capacity of mobilization structures so as to benefit from maximum run-off in wet years: construction of new dams, raising of large dams, increase water transfer capacity, etc. - During wet periods, runoff from the wadis exceeds the capacity of the dams, which requires other storage techniques such as artificial recharge of the aquifers to take advantage of these resources during periods of drought. - The country should	Drought management requires specific legislative measures that allow for quick action. These measures mainly concern the management of water resources, water allocations, arbitration between different users, management of rangelands, exemption from taxes on products which are necessary during periods of drought.	There is no specific structure to protect the country against the phenomenon of drought. This structure would be responsible for drought management, conducting research and drought impact assessment studies	The management of the drought requires the intervention of several actors, namely the administration, the associations and the private operators. The systems of collaboration and communication between all stakeholders are carried out by committees at the regional and sectoral levels under the supervision of a National Commission. There is a need to strengthen the communication systems between the various stakeholders and committees and to	Only the state intervenes to alleviate the negative effects of the drought, there is no drought insurance	Insufficient involvement of citizens in water management and water conservation efforts: this inadequacy has resulted in a still unsatisfactory performance of participatory water management through user associations, in spite of Its generalization since 2007.

	continue to develop all watersheds through appropriate water and soil conservation techniques. -The impact of drought is to be studied for new projects. Each project should include a study of its relative capacity to cope with drought and should include compensatory measures to limit the damage and adverse effects of drought			allow a better flow of information.		

- *Technical (e.g. lack of technical knowledge and in-depth expertise, lack of necessary monitoring infrastructure, inadequate characterization of the hazard, confusion in the purpose and objectives of DRM, lack of in-depth assessments of the cost-effectiveness and suitability of the potential measures, etc.)*
- *Legislative & regulatory (e.g. lack of relevant policy, regulatory texts, guidance/ implementation documents, etc.)*
- *Institutional (e.g. lack of competent authorities & responsible actors, lack of a dedicated "drought task force", confusion in roles allocation, poor enforcement and control, etc.)*
- *Coordination (e.g. responsible actors do not successfully coordinate among them, a proper coordination mechanism among stakeholders at different levels is lacking, lack-of interest, conflicts of interest, etc.)*
- *Financial (e.g. action plans on managing drought risk do exist but there are no financing mechanisms and/or sources to implement them)*
- *Public involvement, equity and acceptability (e.g. coherent DRM plans exist but the foreseen measures are not acceptable by the general public, public involvement/participatory decisions had not been pursued, etc.)*

15. On which specific issues would you wish the **regional training and peer-to-peer activities focus** in order to accommodate your priority needs?	
DZ	Sur les définitions précises des notions: Risque, Aléa, Vulnérabilité; Sur les relations entre ces différentes notions: Risque, aléa, vulnérabilité; Sur les approches: Proactive et Réactive; Enfin, sur la gestion du risque globalement et je suis convaincu que cette formation me sera bénéfique de par les échanges d'expérience.
EG	1. supporting and financing a training program for actors responsible to raise awareness about the issue of drought risk 2. adoption project to develop an action plan for the implementation of the places targeted for drought risk reduction plan 3. financial support to the target zones and provide the required hardware to monitor and record data and alarms 4. constant communication with officials and the public to develop a continued work plan of action 5. support the projects of prevention pollution in coastal areas
JO	
IL	On drought indexed, monitoring and forecasting
LE	
MA	
PS	Drought Risk profiles To know about specific indicators in drought monitoring system
TN	Les différentes phases de la gestion de la sécheresse (préparation, gestion de la sécheresse, post sécheresse).

6.4 Q2 – Training Assessment Questionnaire

Workshop Title	**SWIM-Horizon 2020 Support Mechanism "Drought Risk Management (DRM) Mainstreaming" regional training**
Date	14-15 December 2016
Venue Location	Athens, GREECE
Participant Name	
Participant Title/ Position	
Participant Country	

INSTRUCTIONS/ INSTRUCTIONS:

Please respond to the questions below. Your feedback is sincerely appreciated. Thank you.

Which are the main **Drought Hazard** characteristics? (3 out of 5 are correct answers)

☒ Magnitude (intensity)
☒ Duration
☒ Extent
☐ Streamflow velocity
☐ Vegetation index

1. What is the relation between **Drought** and **Water Scarcity**?

☐ No relation
☒ Water scarcity can thus occur as a result of drought (the driver/ pressure) due to limited precipitation and thus limited availability of freshwater resources (the impact)

2. Which are the main components of **Drought Risk**? (2 out of 4 are correct answers)

☒ Hazard ☒ Vulnerability ☐ Crisis ☐ Reconstruction

3. Drought **Risk Management**: (2 out of 4 are correct answers)

☐ is a reactive approach to drought management

☒ is a proactive approach to drought management

☐ only addresses the symptoms

☒ focuses on identifying vulnerabilities and addresses the problem through mitigation, planning and adaptation

4. Drought **Crisis Management**: (2 out of 4 are correct answers)

☒ is a reactive approach to drought management

☐ is a proactive approach to drought management

☒ only addresses the symptoms

☐ focuses on identifying vulnerabilities and addresses the problem through mitigation, planning and adaptation

5. Do you know about the concept of **Drought Risk Management Mainstreaming (DRMM)** ? If yes, please list the main **steps of the methodology**

DRMM relates to proactive risk management, and helps addressing drought issues not simply as a natural phenomenon, but as a more complex development issue. Mainstreaming is about internalizing drought risk in development frameworks, and advocates that drought risk management is integrated into the planning and decision-making processes across all relevant sectors so that it continues to be part of the agenda in subsequent planning, implementation and revision.

Main steps of DRMM:

- Development of a Drought Risk Profile (for a given area)
- Identification and selection of DRM measures/ options
- Prioritization of the DRM measures/ options
- Internalization of DRM

Stakeholders's engagement and participation (via setting-up a proper stakeholder' mechanism) is a horizontal action across all steps

6. In order to develop a **Drought Risk Profile** for a given area you need to: (3 out of 5 answers are correct)

☒ Analyze and map the drought hazard (using relevant indicators)

☒ Assess the main components of vulnerability in the area and quantify them (using a suitable framework and indicators)

☐ Measure the water depth

☐ Delineate the flooding extent

☒ Synthesize the hazard and vulnerability into prevailing risk

7. Some commonly used **Drought Indicators** include: (5 out of 7 answers are correct)

☒ Standard Precipitation Index (SPI)

☐ Inundation depth

☒ Percent Normal Precipitation and percentiles/ deciles

☒ Soil Moisture Anomaly

☐ Water velocity

☒ Steam Low Flow Q90

☒ Normalized Difference Vegetation Index (NDVI)

8. The parameters listed below contribute to increase **Vulnerability to Drought.** Is this correct?

▪ Population density and growth	☒ YES	☐ NO
▪ Desalination of sea water	☐ YES	☒ NO
▪ Level of freshwater exploitation	☒ YES	☐ NO
▪ Environmental impact assessment	☐ YES	☒ NO
▪ Crop sensitivity	☒ YES	☐ NO
▪ Treated wastewater reuse	☐ YES	☒ NO
▪ Degree of dependence of agriculture on irrigation	☒ YES	☐ NO
▪ Poor water governance and institutions	☒ YES	☐ NO
▪ Low public awareness	☒ YES	☐ NO

9. Which are the **main categories of measures** that you can implement to reduce water scarcity? (2 out of 4 answers are correct)

☐ Media

☒ "Demand reduction" measures (also related to increasing water use efficiency, e.g.: domestic water saving fixture, precision agriculture, smart irrigation sensors, drip irrigation systems, small-scale domestic greywater reuse/recycle systems, leakage reduction, etc.

☐ Fund raising

☒ "Increase supply" measures, e.g. Sustainable Urban Drainage Systems (SUDs) such as retention/detention ponds, wastewater reuse systems, desalination systems, artificial aquifer recharge, rainwater harvesting (RWH), etc.

10. The following are some **criteria** that you use in order to select/ prioritize **mitigation measures and relevant targets,** and some **tools** that can support this process. Is this correct?

Criteria:		**Tools:**	
▪ Policy relevance	☒ YES ☐ NO	▪ Decision Support Systems	☒ YES ☐ NO
▪ Robustness (under future scenarios)	☒ YES ☐ NO	▪ Analytical Hierarchy Process	☒ YES ☐ NO
▪ Cost-effectiveness	☒ YES ☐ NO	▪ Parameterization-Simulation-Optimization (PSO)	☒ YES ☐ NO
▪ Public acceptability	☒ YES ☐ NO	▪ Stakeholders' participatory approaches /consultation	☒ YES ☐ NO
▪ Economic viability (incl. maintenance costs)	☒ YES ☐ NO	▪ Random selection	☐ YES ☒ NO
▪ Attainability	☒ YES ☐ NO	▪ Trial and error approach	☐ YES ☒ NO
▪ Scalability	☒ YES ☐ NO		
▪ Complementarity	☒ YES ☐ NO		
▪ Expandability	☒ YES ☐ NO		

▪ Multi-purpose (serves multiple goals)	☒ YES ☐ NO	

11. The following elements should be **considered to enable the actual implementation** of the selected drought mitigation measures and associated targets. Is this correct?

▪ Time-frame to achieve the target (long vs. short-term)	☒ YES ☐ NO
▪ Review of the methodology	☐ YES ☒ NO
▪ Resources to be secured (financial & human)	☒ YES ☐ NO
▪ Placement of the target at the appropriate level (national, subnational, local)	☒ YES ☐ NO
▪ Nature of the target and measure (binding, non-binding, conditional, pre-requisite)	☒ YES ☐ NO
▪ Enforcement method (voluntary agreement, legal requirement, obligation, financial incentives, public accountability)	☒ YES ☐ NO

12. What would you assess in order to **evaluate of the impact** of the measures you implemented and of the DRMM as a whole? (1 out of 3 answers is correct)

☒ Assess a range of indicators related to the relevance, efficiency, effectiveness (incl. costs), impact, sustainability, acceptance, external utility, etc.

☐ Assess some costs

☐ Assess some benefits

THANK YOU!

6.5 Q3 – Evaluation Questionnaire

Workshop Title/ Intitulé de l'Atelier	**SWIM-Horizon 2020 Support Mechanism regional training on "Drought Risk Management (DRM) Mainstreaming"**	
Date/ ***Date***	14-15 December 2016	
Location/ ***Lieu***	**Country/ pays**	Athens, Greece
	Venue/ Salle de Conférence	Aristotelis A, Divani Palace Acropolis Hotel
Participant Name (optional)/*Nom du Participant (facultatif)*		
Participant Title/ ***Position du Participant***		
Participant's Country ***Pays du Participant***		

INSTRUCTIONS/ INSTRUCTIONS:

Please circle/tick your response to the items. Your feedback is sincerely appreciated. Thank you. / Veuillez encercler/cocher vos choix. Vos commentaires sont les bienvenus. Merci.

A. ORGANISATIONAL, ADMINISTRATIVE AND PLANNING ISSUES BEFORE AND DURING THE EVENT

A. QUESTIONS ORGANISATIONNELLES, ADMINISTRATIVES ET DE PLANNIFICATION AVANT ET PENDANT L'ATELIER

A.1. Appropriate handling of invitations, visa support, information sharing and smoothing obstacles ☐Excellent ☐ Good ☐Average ☐Poor	**A.1. Gestion appropriée des invitations, soutien à l'obtention de visa, diffusion des informations et aide à la résolution des difficultés** ☐Excellent ☐Bien ☐Moyen ☐Mauvais

A.2. Efficient logistics: accommodation, transportation, location of venue and interpretation	**A.2.** ***Efficacité de la logistique: hébergement, transport, lieu de réunion et interprétation***

☐Excellent ☐ Good ☐Average ☐Poor	☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.3. Provision of support (if requested) for participants' preparation for the event ☐Excellent ☐ Good ☐Average ☐Poor	**A.3. Assistance fournie (si elle a été demandée) pour le travail préparatoire des participants pour l'évènement** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.4. Efficient and effective follow-up of preparations and progress towards the event ☐Excellent ☐ Good ☐Average ☐Poor	**A.4. *Suivi efficace de la préparation et des progrès accomplis pour la tenue de l'évènement*** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.5. Planning for the event: selection and design of methodology, programme/daily agenda and work rules ☐Excellent ☐ Good ☐Average ☐Poor	**A.5. Planification de l'évènement: choix et conception de la méthodologie, programme/ ordre du jour et règles de travail** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.6. Smooth flow of programme, efficient handling of emerging needs and attentiveness to participants concerns ☐Excellent ☐ Good ☐Average ☐Poor	**A.6. Bon déroulement du programme, gestion efficace des besoins émergents et aide aux participants** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.7. Presentations correspond and contribute to the planned objectives and are conducive to enhanced shared understanding and participation on addressed topics ☐Excellent ☐ Good ☐Average ☐Poor	**A.7. Les présentations correspondent et contribuent aux objectifs fixés et favorisent la compréhension mutuelle et la participation aux questions abordées** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.8. Clarity, coverage and sufficiency of concepts, objectives, anticipated outputs and outcomes ☐Excellent ☐ Good ☐Average ☐Poor	**A.8. Clarté, couverture et suffisance des notions, des objectifs, des produits et des résultats attendus** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.9. The materials distributed were helpful/ ☐Excellent ☐ Good ☐Average ☐Poor	**A.9. Les matériels distribués ont été utiles** ☐Excellent ☐Bien ☐Moyen ☐Mauvais
A.10. Efficient and Effective Facilitation ☐Excellent ☐ Good ☐Average ☐Poor	**A.10. Modération efficace** ☐Excellent ☐Bien ☐Moyen ☐Mauvais

A.11. Overall rating of the event	A.11. Evaluation globale de l'évènement
☐Excellent ☐ Good ☐Average ☐Poor	☐Excellent ☐Bien ☐Moyen ☐Mauvais

B. FEEDBACK ON TECHNICAL ASPECTS

B. COMMENTAIRES SUR LES ASPECTS TECHNIQUES

B.1. Coverage of the event In your opinion did the event cover (tick one of the following):	B.1. Couverture de l'évènement A votre opinion l'atelier a traité (cochez une des options suivantes):
☐ All the topics necessary for a good comprehension of the subject nothing more ☐ Some topics covered are not necessary ☐ Some additional topics should be included	☐ Tous les sujets nécessaires pour la bonne compréhension de la thématique et rien de plus ☐ Certains sujets traités ne sont pas nécessaires ☐ Des sujets supplémentaires devraient être inclus

B.2. Level of difficulty (tick one of the following):	B.2. Niveau de difficulté (cochez une des options suivantes):
☐ Difficult ☐ Adequate ☐ Elementary	☐ Difficile ☐ Adéquat ☐ Elémentaire

B.3. Length of the training In your view the workshop duration (tick one of the following):	B.3. Durée de l'atelier de formation A votre avis, la durée de l'atelier était (cochez une des options suivantes):
☐ Longer than needed ☐ Sufficient ☐ Shorter than required	☐ Trop long ☐ Suffisante ☐ Trop courte

B.4. What is the most valuable thing you learned during the workshop (knowledge or skills)?
B.4. Quelle est la leçon la plus utile que vous avez-vous apprise pendant l'atelier (connaissances ou compétences)?

B.5. How do you think that the current event will assist you in your future work on the subject?
B.5. Comment pensez-vous que l'atelier de formation peut vous aider dans votre travail futur

sur le sujet?

B.6. Please indicate whether (and how) you could transfer part of the experience gained from the event to your colleagues in your country?
B.6. Veuillez indiquer si (et comment) vous pourriez transférer une partie de expérience acquise lors de cet évènement à vos collègues dans votre pays ? (Question ouverte)

B.7. What did you like most about this event?
B.7. Qu'avez-vous le plus apprécié dans cet évènement?

B.7. What needs to be improved?
B.7. Quelles sont les améliorations à apporter aux prochains évènements?:

Kindly note that some of your statements might be included in this activity's press release/

Veuillez noter que certaines de vos réponses pourront éventuellement être incluses au communiqué de presse de cette activité.

6.6 Photogallery