



Expert Facility Activity No: EFS-JO-1 “Mainstreaming Drought Risk Management, with a focus on proactive measures”

Report of the Consultation Workshop “Roadmap for developing a Drought Risk Management Plan in the Amman-Zarqa catchment”

Version	Document Title	Author	Review and Clearance
1.0	Report of the Consultation Workshop “Roadmap for developing a Drought Risk Management Plan in the Amman-Zarqa catchment”	Maggie Kossida, SWIM-H202 SM Non-key Expert	Suzan TAHA (SWIM-H2020 SM Key Water Expert)



THE SWIM AND H2020 SUPPORT MECHANISM PROJECT (2016-2019)

The SWIM-H2020 SM is a Regional Technical Support Program that includes the following Partner Countries (PCs): Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, [Syria] and Tunisia. However, in order to ensure the coherence and effectiveness of Union financing or to foster regional co-operation, eligibility of specific actions will be extended to the Western Balkan countries (Albania, Bosnia Herzegovina and Montenegro), Turkey and Mauritania. The Program is funded by the European Neighborhood Instrument (ENI) South/Environment. It ensures the continuation of EU's regional support to ENP South countries in the fields of water management, marine pollution prevention and adds value to other important EU-funded regional programs in related fields, in particular the SWITCH-Med program, and the Clima South program, as well as to projects under the EU bilateral programming, where environment and water are identified as priority sectors for the EU co-operation. It complements and provides operational partnerships and links with the projects labelled by the Union for the Mediterranean, project preparation facilities in particular MESHIP phase II and with the next phase of the ENPI-SEIS project on environmental information systems, whereas its work plan will be coherent with, and supportive of, the Barcelona Convention and its Mediterranean Action Plan.

The overall objective of the Program is to contribute to reduced marine pollution and a more sustainable use of scarce water resources. The Technical Assistance services are grouped in 6 work packages: WP1. Expert facility, WP2. Peer-to-peer experience sharing and dialogue, WP3. Training activities, WP4. Communication and visibility, WP5. Capitalizing the lessons learnt, good practices and success stories and WP6. Support activities.



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Disclaimer:

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ABBREVIATIONS

AZ	Amman-Zarqa
DMU	Drought Management Unit
DRMP	Drought Risk Management Plan
JVA	Jordan Valley Authority
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MoH	Ministry of Health
MoMA	Ministry of Municipal Affairs
MoP	Ministry of Planning and International Cooperation
MWI	Ministry of Water and Irrigation
NARC	National Agricultural Research Centre
NDC	National Drought Committee
NMS	National Meteorological Service
NCSCM	National Centre for Security and Crisis Management
NGOs	Non-Governmental Organisations
WAJ	Water Authority of Jordan
WUAs	Water Users Associations



1 GENERAL INTRODUCTION

Within the scope of the EFS-JO-1: “Mainstreaming Drought Risk Management, with a focus on proactive measures” the EU-funded project “Sustainable Water Integrated Management & Horizon 2020 Support Mechanism (SWIM-H2020 SM)”, in cooperation with the Ministry of Water and Irrigation (MWI) has conducted a one-day Consultation Workshop to present the findings of the activities undertaken in relation to drought identification and characterisation in Amman-Zarqa catchment and groundwater drought vulnerability in the catchment, as well as discuss and define, through a participatory approach with the stakeholders, the methodological steps and actions to be followed towards developing a Drought Risk Management Plan (DRMP) for the Amman-Zarqa catchment (Roadmap).

1.1 BACKGROUND OF ACTIVITY

Jordan has prepared a National Water Sector Strategy (NWSS) (2016-2025) which refers to the need to address drought management and adaptation to climate change through proper policies and regulations. The Water Reallocation Policy calls for launching awareness campaigns addressing the importance of issues such as water harvesting, conserving and protecting resources, while the Water Substitution and Reuse Policy proposes the reuse of treated wastewater in irrigation, in order to enable freeing fresh water to be utilized for municipal uses. Under this context, activities related to drought risk management mainstreaming are highly relevant to the Country's Strategic Framework.

During 2013, under the framework of the SWIM-SM project, a regional assessment of past drought and flood events in the SWIM partner countries was undertaken, incorporating also a detailed analysis of the prevailing drought management practices and response actions implemented in Jordan. The main finding of the assessment for Jordan, in terms of drought risk management, indicated a weak institutional setting, scattered efforts, inadequate infrastructure, and lack of dedicated budget to disaster response. Additionally, the lack of a proper legal framework, clear mandates and coordination mechanisms impedes the implementation of coherent and proactive drought risk management. In view of these findings, activities targeting the strengthening of the current drought management approach in Jordan, be it related to the identification of vulnerability and risk, the incorporation of prevention, mitigation and preparedness measures, or the integration of drought risk management into existing frameworks are of paramount importance.

Under this context, the current SWIM-H2020 SM specific activity EFS-JO-1: “Mainstreaming Drought Risk Management, with a focus on proactive measures” aims to support the country in enhancing preparedness and response to drought-related natural disasters and boost the resilience in the water sector through a series of interrelated activities on drought hazard and vulnerability characterization and drought risk management mainstreaming. The specific task undertaken under this activity included drought Identification and characterisation in Amman-Zarqa catchment on the basis on drought hazard



indicators, the analysis of the hydro-system and particularly the balance between the groundwater abstraction and safe yield for the period 2001-2015 using a semi-distributed water resources management model developed in WEAP21 software, the development of a Groundwater Drought Vulnerability Indicator (GDVI) in the Amman-Zarqa catchment in order to assess the associated drought vulnerability, as well as capacity building activities to train the MWI staff on the WEAP21 model and to discuss with stakeholders the necessary steps towards the development of a Drought Risk Management Plan (DRMP) for the Amman-Zarqa catchment.



2 OBJECTIVES OF ACTIVITY

The objectives of the Consultation Workshop are twofold:

- (a) Disseminate to the stakeholders the drought-related products developed by SWIM-H2020 SM for the Amman-Zarqa catchment within the scope of this activity, namely the Drought Hazard Indicators, the Drought Vulnerability Indicator, and the WEAP21 Water Resources Management model developed for the Amman-Zarqa catchment and get their feedback on these products.
- (b) Define, through a participatory approach with the stakeholders, the methodological steps and actions to be followed towards developing a Drought Risk Management Plan (DRMP) for the Amman-Zarqa catchment (Roadmap). Furthermore, the discussion aims to define targets (based on the drought hazard and vulnerability outputs) for drought risk mitigation proactive measures for drought risk management across the different sectors, actions and roles, entry points for mainstreaming the DRMP, synergies with other sectors and policies, etc.

To achieve these objectives the workshop has been structured in two parts:

Part 1:

- Presentation of the Drought Hazard Indicators, the Drought Vulnerability Indicator, and the WEAP21 Water Resources Management model developed for the Amman-Zarqa catchment by the SWIM-H2020 SM project team
- Feedback from the stakeholders, interactive discussion

Part 2:

- Presentation of the main steps in developing Drought Risk Management Plans
- Participatory discussion with the stakeholders in order to establish a Roadmap towards the development of a Drought Risk Management Plans (DRMP) for the Amman-Zarqa catchment



3 RESULTS OF THE CONSULTATION

The main outcomes of the workshop are presented below:

1. Participants have gained an improved understanding of the water resources state in the Amman-Zarqa catchment and the relevant drought hazard and vulnerability components.
2. Participants have gained insight on how to implement participatory processes in drought risk management
3. A participatory approach with stakeholders has been initiated towards the development of a Drought Risk Management Plan (DRMP) in the Amman-Zarqa (AZ) pilot catchment. In this regard, the **overarching objectives** of the AZ DRMP have been defined in harmonization with the national drought risk management policy objectives, the **main institutions** which need to coordinate have been identified, as well as the **key components** of the AZ DRMP
4. A Roadmap for the development of the Amman-Zarqa pilot catchment DRMP has been discussed

The following **overarching objectives** of the AZ DRMP have been defined, which are aligned with the national drought policy objectives:

- O1. Guarantee water availability in sufficient quantities to meet essential human needs to ensure population's health and life
- O2. Avoid or minimize negative drought impacts, by all available means, on the status of water bodies, especially on ecological flows and on the quantitative status for groundwater, on the agro-ecosystems, and in particular in cases of prolonged drought
- O3. Minimize negative effects on economic activities (agriculture and industry), according to the priority given by the new established Jordanian Water Strategy (2016-2025).
- O4. Address proactive management but also include crisis management

It has also been highlighted that since agriculture is an important activity in the AZ basin, and farmers' compensations during droughts are a significant burden to the Government, more emphasis and a higher priority should be given to the agricultural sector.

The following **actions and institutions** have been identified as key players which need to coordinate among them and allocate roles towards the development of the AZ DRMP:

- Ministry of Water and Irrigation (MWI), namely the recently established Drought Management Unit (DMU), the Water Authority of Jordan (WAJ) which deals with domestic water allocations and groundwater supply and consumption, and the Jordan Valley Authority (JVA) which deals with surface water supply (dams), the King Abdullah Canal, the irrigation systems and orders,, as well as awareness raising (relevant JVA department)
- National Drought Committee (NDC), namely the Task Force for the surface and groundwater basins



- Ministry of Environment (MoE), namely the Climate Change Unit who works on adaptation planning, the Awareness Raising Unit, and the Natural Protection Directorate
- Ministry of Agriculture (MoA), namely the National Agricultural Research Centre (NARC) who works on climate change, drought monitoring, awareness, crop management, etc.
- Ministry of Municipal Affairs (MoMA)
- Ministry of Health (MoH)
- Ministry of Planning and International Cooperation (MoP) who provides funding
- National Centre for Security and Crisis Management (NCSCM) who is mainly involved in crisis management
- National Meteorological Service (NMS) who works on forecasting
- Governorates' Directorates for Water and Agriculture
- Water Users Associations (WUAs) and Rangers
- Non-Governmental Organisations (NGOs)

The following **components** have been identified **to be embedded in the AZ DRMP**:

- Definition of the objectives and goals of the AZ DRMP
- Definition of the roles and tasks of each contributing actor and institution (governance scheme)
- Characterization of drought on the basis of drought hazard indicators, with relevant thresholds and alert level
- Assessment of the impacts experienced across the different sectors
- Assessment of drought vulnerability and risk, on the basis of both drought vulnerability indicators and risk indicators with relevant classification
- Description of an operation Early warning system (monitoring indicators, information flow, roles of competent authorities' and required cooperation between them, information flow, decision-making process)
- Drought response measures (proactive and crisis measures) linked to the different drought alert levels
- Action plan in relation to the declaration of drought and the implementation of the identified measures (who does what)
- Awareness and capacity building plan

The following **actions** have been identified **to be undertaken as next steps (Roadmap)** towards the development of the AZ DRPM:

- A1 Implementation of a "Consolidation Workshop", to be organised by the MWI, to gather and exchange on all relevant work and products existing across the different projects and actors, with the purpose of consolidating all existing information and products
- A2 Organisation of an "Information Day" for the Amman-Zarqa river basin, where all relevant stakeholders will be informed of the prevailing issues in the basin, and become aware of the different initiatives



- A3 Organisation of a “Study Tour” where the competent authorities involved in the drafting of the AZ DRMP can visit an analogue basin serving as a pilot
- A4 Institutionalisation of a Task Force for developing the AZ DRMP



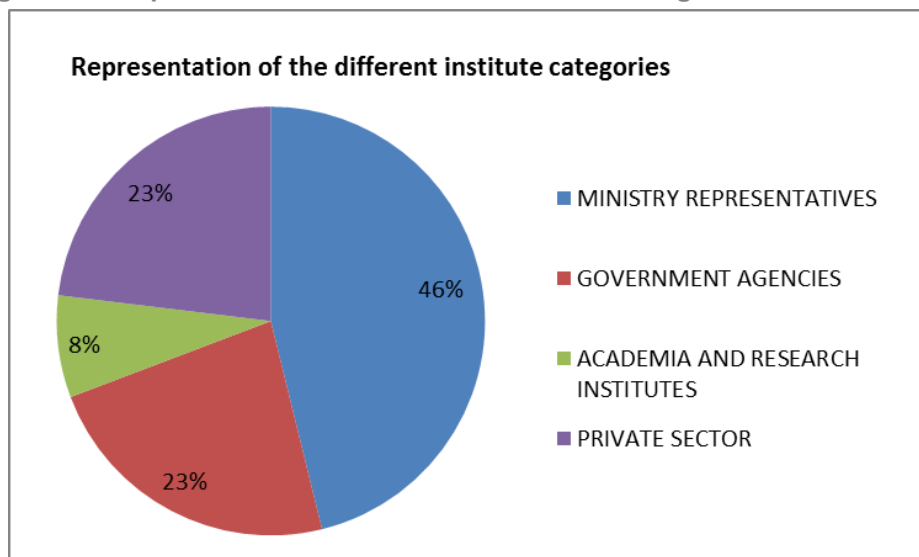
4 PROFILE OF THE PARTICIPANTS

The audience included representative from ministries, government agencies, academia and research institutes in addition to the private sector. More specifically, representatives from the following organisations participated in the workshop:

- Jordanian Ministry of Water and Irrigation (MWI), Drought Management Unit
- Jordanian Ministry of Water and Irrigation (MWI), Policies and Strategic Planning Department
- Jordanian Ministry of Environment (MoE), Water Protection Section
- Jordan Valley Authority (JVA), Studies Division
- Jordan Valley Authority (JVA), Dams Division
- Water Authority of Jordan (WAJ)
- National Agricultural Research Centre, Drought Department
- University of Jordan
- SWIM-H2020 SM Experts

Regarding the participants' demographics, a total of 13 participants attended the workshop (for a detailed participants' list refer to Annex 7.2), of which 31% women and 69%, and with the following institutional mix: 46% from ministries, 23% from government agencies, 8% academia and research institutes, 23% the private sector.

Figure 4-1: Representation of the different institute categories in the workshop





5 EVALUATION OF THE EVENT

5.1 RESULTS OF THE EVENT

A. Organisational, administrative and planning issues before and during the event

A set of 7 criteria (A1-A7, see table below) have been assessed by the participants, using a qualitative description ranging between “Excellent” to “Poor”, with an opportunity to provide suggestions for improvement. For the sake of comparison, the qualitative descriptions are given Series Numbers as follows:

Excellent = 4 Good = 3 Average = 2 Poor = 1

A1	Efficient logistics: location of venue and interpretation (where applicable)
A2	Smooth flow of programme, efficient handling of emerging needs and attentiveness to participants concerns
A3	Planning of the workshop: efficient and effective communication of objectives
A4	Presentations correspond and contribute to the planned objectives and are conducive to enhanced shared understanding and participation on addressed topics
A5	Clarity, coverage and sufficiency of concepts, objectives, anticipated outputs and outcomes
A6	Efficient and Effective Facilitation
A7	Overall rating of the event

The results of the assessment for each criterion are presented in the table below and in the following graphs (per criterion).

Table 5-1: Results of the assessment (rating) of the organisational, administration and planning aspects of the workshop

No	Criterion	Average score
A1	Efficient logistics: location of venue and interpretation (where applicable)	3,17 / 4
A2	Smooth flow of programme, efficient handling of emerging needs and attentiveness to participants concerns	2,67 / 4
A3	Planning of the workshop: efficient and effective communication of objectives	1,67 / 4
A4	Presentations correspond and contribute to the planned objectives and are conducive to enhanced shared understanding and participation on addressed topics	3,17 / 4



No	Criterion	Average score
A5	Clarity, coverage and sufficiency of concepts, objectives, anticipated outputs and outcomes	2,83 / 4
A6	Efficiency and effectiveness of the facilitation	3,33 / 4
A5	Overall rating of the event	2,83 / 4

Figure 5-1: Rating of the organizational and administrative aspects on the workshop

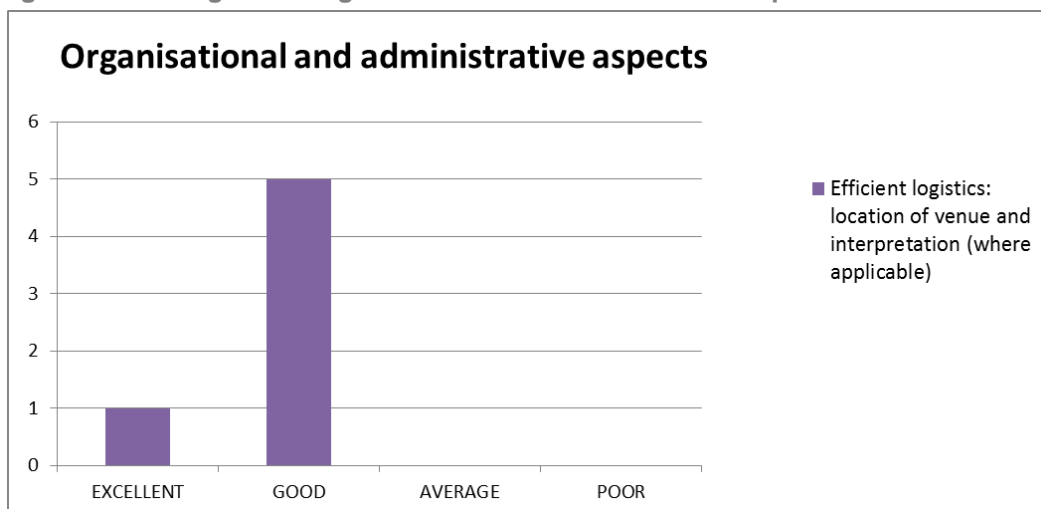


Figure 5-2: Rating of the workshop programme planning and flow

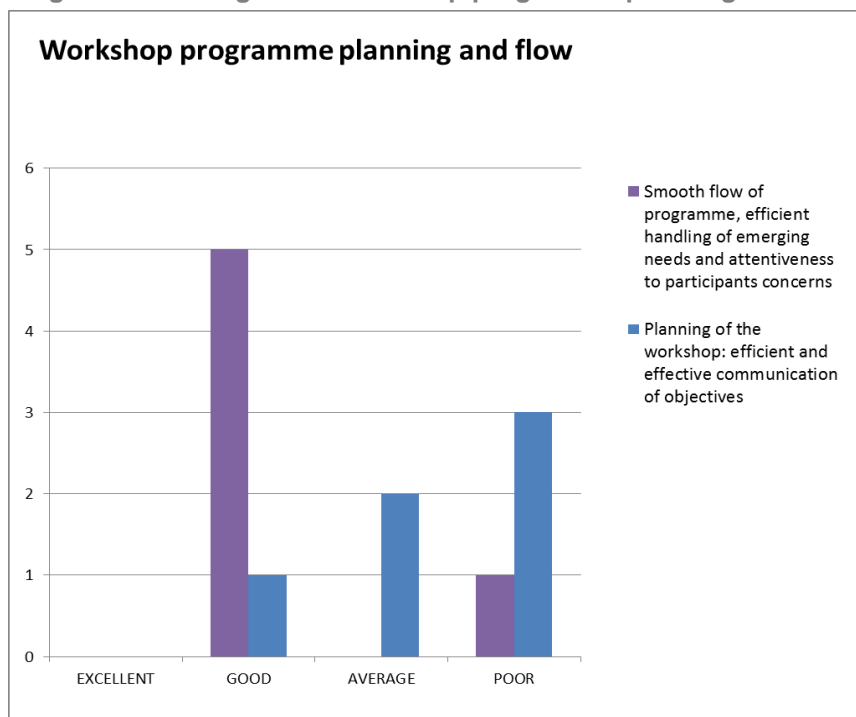
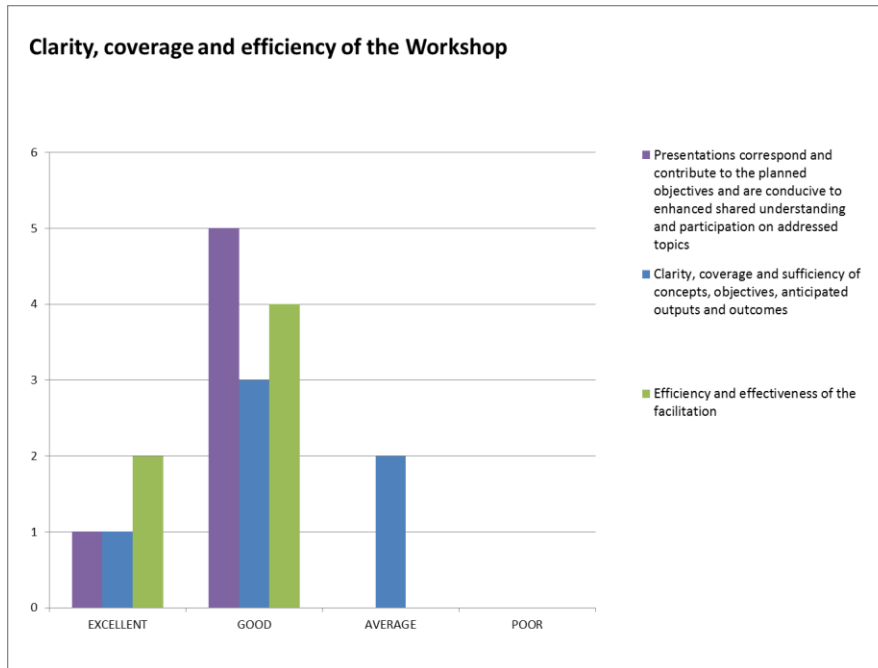




Figure 5-3: Rating of the workshop clarity, coverage and efficiency



B. Feedback by participants on technical aspects:

Coverage of the event: Regarding the event coverage evaluation, 50% of the participants felt that all the topics necessary for a good comprehension of the subject (and nothing more) were covered, 4% felt that some of the topics covered were not necessary, while 17% felt that some additional topics should be included (Figure 5-5).

Efficient and effective performance and interaction with Experts hosting the consultation meeting: Regarding the efficiency and effectiveness of the performance and interaction with the Experts hosting the consultation, 50% of the participants reflected it was excellent and 60% of the participants reflected it was good (Figure 5-6).

Length of the workshop: Regarding the workshop duration, 100% of the participants thought it was sufficient. (Figure 5-7)



Figure 5-4: Rating of the workshop coverage

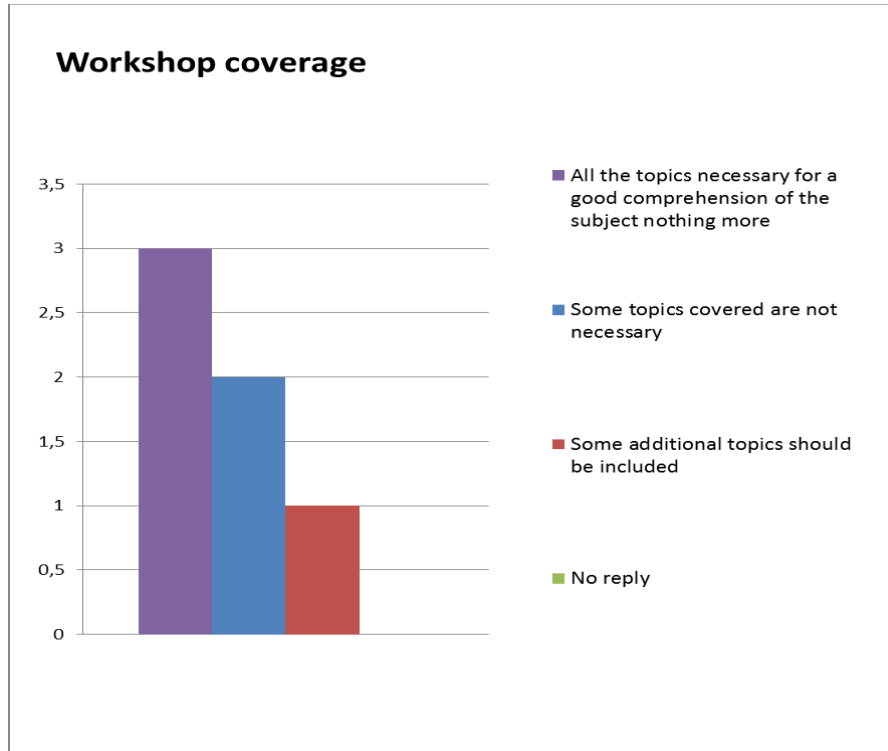


Figure 5-5: Rating of the efficient and effective performance and interaction with Experts

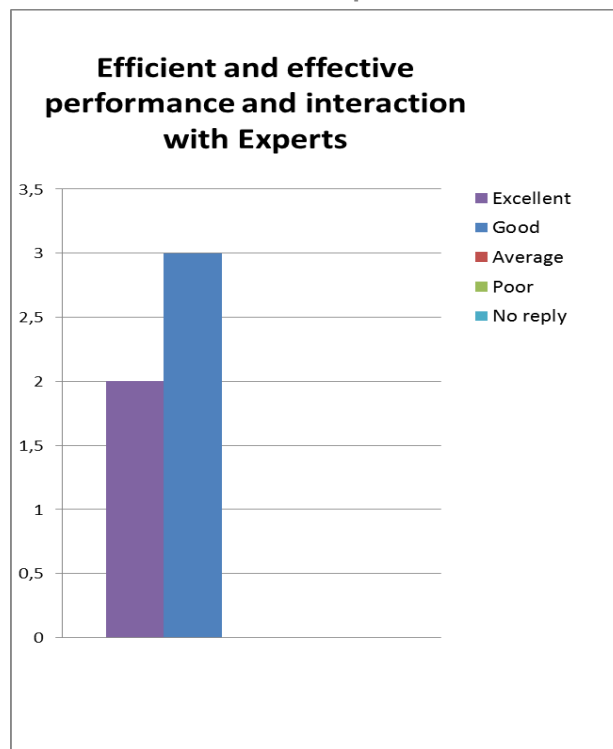
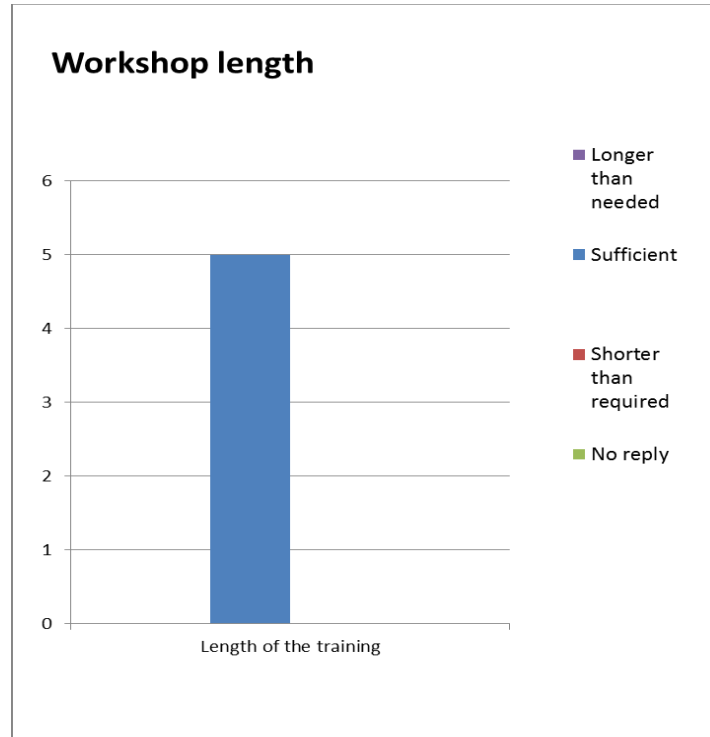


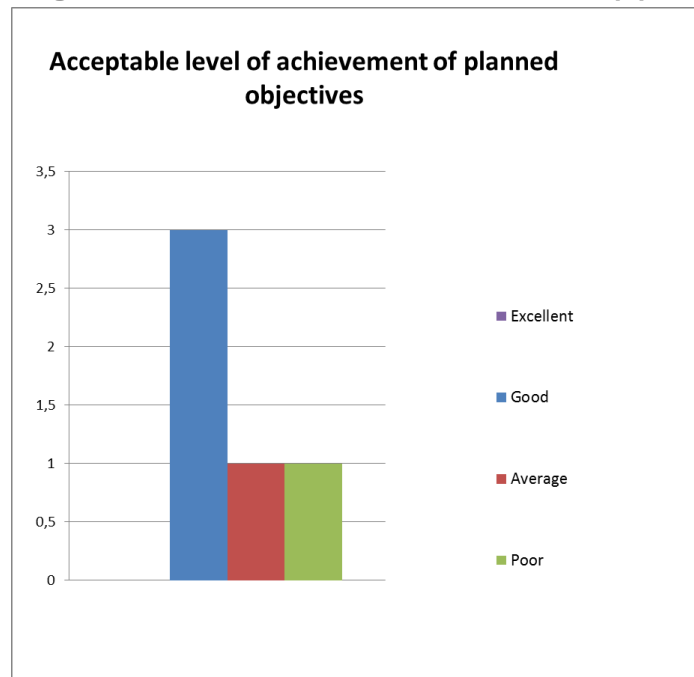


Figure 5-6: Rating of the workshop length



Acceptable level of achievement of planned objectives: Regarding the level of achievement of the planned objectives, 60% of the participants reflected it was good, 20% of the participants reflected it was average, and 20% of the participants reflected it was poor.

Figure 5-7: Rating of the level of achievement of the workshop planned objectives





What did you like most about this event? The following answers have been provided by the participants:

- (a) Good experts
- (b) Interesting main topic
- (c) Clear presentations on the approach
- (d) Focused discussions as participants are experts in the area.

What needs to be improved? The following answers have been provided by the participants:

- (a) The planning (not good)
- (b) The planning of the event shall go directly to the goal of the event. The people who have participated (managerial level) did not attend that is why the goal of the event suffers achievement
- (c) More participants and focused ideas
- (d) Involvement of more stakeholders



6 CONCLUSIONS & OVERALL ASSESSMENT

The workshop objectives have been met as the participants have gained an improved understanding of the water resources state in the Amman-Zarqa catchment and the relevant drought hazard and vulnerability components, and an insight on how to implement participatory processes in drought risk management.

The participatory approach with stakeholders towards the development of a Drought Risk Management Plan (DRMP) in the Amman-Zarqa (AZ) has been successfully initiated although the number of participating stakeholders was not optimal. As an output of this consultation the overarching objectives of the AZ DRMP have been defined in harmonization with the national drought risk management policy objectives, the main institutions which need to coordinate have been identified, as well as the key components of the AZ DRMP. Finally, a set of actions to be implemented in the immediate future (Roadmap) have been defined.

One of the issues that emerged during the workshop is the poor coordination among institutions: different relevant drought products exist among the different stakeholders, and actions focusing on various components of drought risk management are undertaken by various institutes, yet consolidation of all efforts, sharing of knowledge and exchange is weak amongst them. In some cases, there is even some lack of knowledge among departments of the same institutes. Constructive dialogue, consolidation and strong coordination are thus of paramount importance in the area of drought risk management which has multiple components spread across different institutions.

With regards to the AZ DRMP, the SWIM-H2020 SM EFS-JO-1 work has set the necessary building blocks towards the development of the Plan, though the work undertaken was focused on characterising the drought hazard (on the basis of drought hazard indicators), suggesting early warning indicators, analysing the groundwater balance through the development of a distributed model in WEAP, and in assessing groundwater drought vulnerability. These products can directly feed the AZ DRMP. Furthermore, on the basis of these products, the work can be extended in simulating the hydrosystem's water balance based on actual total water demands, and on testing (via model simulation) different demand management measures (either water saving or increasing supply measures).

It is recommend that the actions identified in the Roadmap in Chapter 3 (implementation of a "Consolidation Workshop", organisation of an "Information Day", institutionalisation of a Task Force for developing the AZ DRMP) are prioritised by the MWI since the participating stakeholders demonstrated a clear interest in pursuing this work for the Amman-Zarqa river basin.



7 ANNEXES

7.1 AGENDA

SWIM-H2020 SM Consultation Workshop “Roadmap for developing a Drought Risk Management Plan in the Amman-Zarqa catchment”

Venue: Ayass Hotel

Wednesday, November 28th, 2018

Item	Time	Description	Speaker
	10:00 – 10:15	Registration	
#1	10:15 – 10:35	<ul style="list-style-type: none"> Welcome remarks Presentation of the workshop objectives and agenda Tour de table (introduction of the participants) 	<ul style="list-style-type: none"> Eng. Ali M. Subah, Secretary General, Ministry of Water and Irrigation (MWI), SWIM National Focal Point Dr. Maggie Kossida (SWIM-H2020 Non-key Expert)
#2	10:35 – 11:15 (20mins presentation + 20mins discussion)	<ul style="list-style-type: none"> Drought Hazard analysis in the Amman-Zarqa catchment (presentation) Feedback and discussion with the stakeholders 	<ul style="list-style-type: none"> Mr. Demetris Zarris (SWIM-H2020 Non-key Expert) All participants
	11:15 - 11:30	Coffee Break	
#3	11:30 – 12:05 (20mins presentation + 15mins discussion)	<ul style="list-style-type: none"> The WEAP21 Water Resources Management model of the Amman-Zarqa catchment Feedback and discussion with the stakeholders 	<ul style="list-style-type: none"> Eng. Mr. Saleh Al Qura'n (SWIM-H2020 Non-key Expert) All participants
#4	12:05 – 12:45 (20mins presentation + 20mins discussion)	<ul style="list-style-type: none"> Drought Vulnerability analysis in the Amman-Zarqa catchment Feedback and discussion with the stakeholders 	<ul style="list-style-type: none"> Maggie Kossida (SWIM-H2020 Non-key Expert) All participants
#5	12:45 – 13:00	Methodological steps in developing Drought Risk Management Plans (presentation)	Maggie Kossida (SWIM-H2020 Non-key Expert)
	13:00 - 13:45	Lunch Break (light buffet lunch)	
#6	13:45 – 15:45	Roadmap for the development of a Drought Risk Management Plan (DRMP) in the Amman-Zarqa	All participants Facilitator: Maggie Kossida



		catchment Participatory discussion with all participants	Rapporteur: Demetris Zarris
#7	15:45 – 16:00	Wrap-up and next steps Workshop Evaluation (Questionnaires)	Maggie Kossida (SWIM-H2020 Non-key Expert)

7.2 LIST OF PARTICIPANTS

Table 7-1: List of participants

COUNTRY	TYPE OF INSTITUTION (please use the options provided*)	TITLE (Mr/Ms)	FIRST NAME	LAST NAME	POSITION/FUNCTION	ORGANISATION/INSTITUTION	EMAIL
Jordan	MINISTRY REPRESENTATIVES	Mr	Ali	Ghanim	Director of Drought Management unit	MWI	ali_ghanim@mwi.gov.jo
Greece	PRIVATE SECTOR	Mr	Dimitris	Zarris	NKE	SWIM-H2020 SM	dez@ldk.gr
Jordan	PRIVATE SECTOR	Mr	Saleh	Quran	NKE	SWIM-H2020 SM	sa.alquraan@gmail.com
Greece	PRIVATE SECTOR	Ms	Maggie	Kossida	NKE	SWIM-H2020 SM	maggie@ldk.gr
Jordan	MINISTRY REPRESENTATIVES	Eng	Batainah	Batarseh	Head of water protection section	MoE	bathainah.batarseh@moenv.gov.jo
Jordan	MINISTRY REPRESENTATIVES	Eng	Adel	Alobeiat	Director of Policies	MWI	adel_alobeiat@mwi.gov.jo
Jordan	GOVERNMENT AGENCIES	Eng	Muna	Saba	Head of Drought dept.	NARC	msaba_ncartt@yahoo.com
Jordan	ACADEMIA AND RESEARCH INSTITUTES	Prof	Jawad	Al Bakri	Professor	The GOJ	jbakri@ju.edu.jo
Jordan	MINISTRY REPRESENTATIVES	Eng	Ahmad	Ulimat	ASA/LAHS	WAJ	Ahmed_uleimat@mwi.gov.jo
Jordan	MINISTRY REPRESENTATIVES	Mr	Rekaut	Bam-khadal	Director	WAJ	
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Jordan	MINISTRY REPRESENTATIVES	Mr	Yousef	Alaitan	SGA for OXM	WAJ	yousefalaitan2012@gmail.com
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