



SWIM-H2020 SM Expert Facility Activity EFS-JO-1, Task 1

Inception Report

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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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TABLE OF CONTENTS

1	INTRODUCTION.....	7
2	BACKGROUND OF THE EFS-JO-1 ACTIVITY	7
2.1	GENERAL BACKGROUND.....	7
2.2	SYNERGIES WITH ONGOING PROJECTS.....	8
3	OBJECTIVES AND EXPECTED RESULTS.....	10
3.1	AIM AND OBJECTIVES OF THE ACTIVITY.....	10
3.2	RESULTS TO BE ACHIEVED	11
4	SCOPE OF WORK	12
4.1	TASKS TO BE EXECUTED.....	12
4.2	TIMEPLAN AND LEVEL OF EFFORT.....	16
5	DELIVERABLES AND REPORTS.....	19
5.1	DELIVERABLES.....	19
5.1	OUTLINE OF THE REPORTS.....	20



LIST OF TABLES

TABLE 4-1: OVERVIEW OF THE EFS-JO-1 ACTIVITY TASKS	12
TABLE 4-2: TIMETABLE OF THE EFS-JO-1 TASKS.....	17
TABLE 4-3: LEVEL OF EFFORT (LOE) OF THE EFS-JO-1 TASKS PER EXPERT.....	18



ABBREVIATIONS

AZ	Amman-Zarqa
AZB	Amman-Zarqa Basin
CDI	Composite Drought Index
DMU	Drought Management Unit
DMS	Drought Monitoring System
DRM	Drought Risk Management
DRMP	Drought Risk Management Plan
EWS	Early Warning system (EWS).
ICBA	International Centre for Bio-saline Agriculture
JVA	Jordan Valley Authority
MoA	Ministry of Agriculture
MWI	Ministry of Water and Irrigation
PC	Partner Country
RB	River Basin
SoP	Set of Procedures
ToR	Terms of Reference
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Program
WAJ	Water Authority of Jordan
WEAP	Water Evaluation and Planning



1 INTRODUCTION

The SWIM-H2020 SM is a regional, European-Union funded service contract which aims to assist the South Mediterranean countries in sustainable water management and reduced marine pollution. In close cooperation with the Jordanian Ministry of Water and Irrigation (MWI), SWIM-H2020 SM is implementing an activity titled EFS-JO-1: “Mainstreaming Drought Risk Management, with a focus on proactive measures” which 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 Amman-Zarqa river basin has been selected as a pilot for that purpose.

The current Inception Report aims at clarifying the different tasks of the activity as formulated after the kick-off meeting with the MWI on the 13th of July 2017 and specifying the details of each task and sub-task.

2 BACKGROUND OF THE EFS-JO-1 ACTIVITY

2.1 GENERAL BACKGROUND

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. It also provides for using the treated wastewater in other economic activities, avoiding negative impacts on water and soil quality. 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 EU-funded Sustainable Water Integrated Management - Support Mechanism (SWIM-SM) project, a regional assessment of past drought and flood events in the SWIM partner countries 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 focus countries, Jordan being one of them. The main finding of the assessment for Jordan, in terms of drought risk management, indicated a currently weak institutional setting, scattered efforts, inadequate infrastructure, 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 this 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 SWIM-H2020 SM project will implement, as part of project Expert Facility workplan, the so-called activity “EFS-JO-1:Mainstreaming Drought Risk Management, with a focus on proactive measures”. This activity will 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 that could contribute to:

- (a) The subsequent development of drought management policies and regulations, as well as measures to address the problems.
- (b) The development of cross sectorial links and provisions to ensure that sectorial policies do not counter their intended purposes of drought mitigation and preparedness-related efforts.
- (c) The building of the necessary critical mass of experts and officers that is able to support technically and operationally the drought management policies and their implementation.

The target groups of this activity are the water users of the different economic sectors (e.g. industry, agriculture, domestic), policy and decision-makers, water managers and planners, i.e. the Ministry of Water and Irrigation (MWI), the Water Authority of Jordan (WAJ), the Jordan Valley Authority (JVA), the Ministry of Agriculture (MOA), the Drought Monitoring Unit (DMU) of the National Centre for Agriculture Research and Extension at the MOA. With regards to the training sessions that will be implemented as part of this activity, the audience to be trained will be MWI and Drought Management Unit (DMU) staff involved in drought monitoring and in drought management/ water resources management and planning, hydrological and water balance modeling. As both training will be of technical nature, the MWI staff should be of technical caliber (e.g. engineers, technicians, etc.).

2.2 SYNERGIES WITH ONGOING PROJECTS

During the EFS-JO-1 activity kick-off meeting at the Jordanian Ministry of Water and Irrigation (MWI) on the 13th of July 2017, the Water Key Expert and the Non-Key Experts involved in this activity were informed that a similar project funded by the United Nations Development Program (UNDP) is currently under completion. The Ministry of Environment commenced (in March 2015) a three-year medium size GEF-funded and UNDP-supported project that aims at Mainstreaming the Rio Convention provisions into key national sectoral policies and/or legislation in Jordan. Under this objective, the UNDP project is to produce core outputs leading to mainstreaming Rio Convention into priority strategies namely, the National Drought Strategy and the National Rangeland Strategy, which are under the mandate of the Ministry of Water & Irrigation (MWI), and other two projects related to Rangeland and Energy Sector at the Ministry of Agriculture (MoA) and Ministry of Energy, respectively.



The purpose of the UNDP project is to support Jordan in obtaining a higher level of preparedness for drought management and response through the development of national strategy and action plan as a part of the United Nations Convention to Combat Desertification (UNCCD). The first expected outcome is to strengthen the institutional capacities to formulate sectoral policies that are embedded with Rio Convention provisions. The second expected outcome, complementing the first one, is to improve awareness and understanding of Rio Convention's contribution to sustainable development processes by the end of the mainstreaming project. The outputs of the UNDP project will be:

1. Institutional and legal set ups related to drought management revamped.
2. Training programme designed and implemented.
3. Awareness raising program on drought hazards and the underlying causes of its impacts.
4. Drought mitigation measures are mainstreamed into Disaster Risk Reduction Fund.
5. A national drought resilience strategy and action plan developed in a participatory manner.
6. An early warning system established in the most vulnerable areas in the country.
7. Pilot priority interventions at the local level.

The progress of the project so far can be schematized as follows:

- A thorough institutional and legal analysis has been carried out to define the gaps in the current institutional - regulatory framework related to drought management.
- A new institutional and governance structure related to drought management was proposed.
- A policy statement on drought management was developed.
- A National Drought Management Plan in Water Sector was developed.
- An early warning system was designed based on effective drought monitoring indices.
- Training on drought monitoring in cooperation with the International Centre for Bio-saline Agriculture (ICBA) was carried out. Training specifically was on software developed by ICBA using the Composite Drought Index (CDI).
- Pilots on adaptation to drought was designed and funded to be implemented by two NGOs on local level.

The ongoing activities for the total completion of the project are the following:

- Producing the Drought Vulnerability and Impact Assessment in Jordan.
- Establishing the Drought Management Unit at MWI.
- Developing Drought Management Plan in Health and Agriculture Sectors.
- Setting up the drought early warning system.

Obviously, the scope of the UNDP project has common elements with the SWIM-H2020 SM Expert Facility Activity EFS-JO-1 and the two projects are overlapping in major areas. However, despite the recent approval of the previous version of the EFS-JO-1 Terms of Reference (ToR), and the fact that the activity was not yet launched, it is considered essential that the EFS-JO-1 ToR is revised. In this respect, the project team proceeded to the ToR's modification in order to be adjusted to the new situation.



As discussed with the Jordanian Focal Point during the kick-off meeting, it is proposed to implement the ToR tasks in a pilot Jordanian basin, streamlining them with UNDP methodology, namely in the Amman-Zarqa basin (catchment area 3,739 km²). SWIM-H2020 SM has received from the UNDP Focal Point in the MWI copies of the UNDP deliverables submitted so far. These include the following volumes:

1. Analytical Framework for Drought Governance in Jordan and a National Drought Resilience Strategy and Action Plan. Stakeholders and Institutional Gap Analysis (published on June 2016).
2. The National Drought Early Warning System & its Set of Procedures (SoPs) (published on December 2016).
3. Policy Statement on Drought Management (published on December 2016).
4. Institutional Setup & Regulatory Framework to Drought Management (published on December 2016).
5. The National Drought Management Plan in Water Sector (published on February 2017).

The NKEs initially reviewed the submitted volumes. The first finding is that the meteorological analysis to assess drought occurrence is still pending and the review of the Drought Hazard Indicators (relevant to Task 2 of the EFS-JO-1 ToR) is still at the general level without proposing specific indicators for monitoring and analyses. Drought vulnerability indicators on the other hand (relevant to Task 2 of the EFS-JO-1 ToR) were not presented in the submitted UNDP volumes so no relevant information is currently available on the planned developments. In the scope of the above, it is considered essential to proceed to an amendment of the ToR tasks, as presented in the current Inception Report.

3 OBJECTIVES AND EXPECTED RESULTS

3.1 AIM AND OBJECTIVES OF THE ACTIVITY

The activity's main objectives are the following:

1. Support the development of a comprehensive detailed action plan, along with specific tools and procedures, for managing drought risk in the pilot area of Amman-Zarqa in Jordan;
2. Critical assessment of the reports produced by the UNDP and identification of gaps in the identification of the composite drought hazard indices and drought vulnerability indicators/methodology (it is a precondition that reading material on the indicators' methodology and results are provided to the if Consultant);
3. Development of drought hazard and vulnerability indicators at the detailed local level (in the Amman-Zarqa pilot catchment) in harmonisation with the UNDP's methodology for the pilot catchment of Amman – Zarqa;



4. Capacity building of the MWI towards the efficient use of the WEAP water resources management model;
5. Development of a mechanism to ensure the monitoring of drought, and the dissemination of timely and accurate information on drought conditions to the different stakeholders on the Amman-Zarqa catchment, the media and the general public (Drought Bulletin based on a Drought Monitoring System);
6. Strengthening the institutional mechanisms and capacities, and provision of tools and methods to MWI and stakeholders on the Amman-Zarqa catchment to enhance their resilience against drought hazards and disasters;
7. Setting the cornerstones for mainstreaming Drought Risk Management (DRM): initiate a participatory approach with stakeholders in Amman-Zarqa catchment, in defining targets, measures, etc., draft an organizational structure that assures information flow between and within levels of government agencies and defines the duties and responsibilities of all agencies with respect to drought (in coherence with the national drought policies);
8. Training and capacity building of the MWI staff on aspects of Drought Risk Management, including the practical implementation and operation of a Drought Monitoring System (DMS) and Early Warning system (EWS).

3.2 RESULTS TO BE ACHIEVED

The following lists are the expected results to be achieved per task or group of tasks:

1. Establishment of a Drought Monitoring System (DMS) on the basis of composite indicators and application in the pilot area of Amman-Zarqa;
2. Analysis of the drought vulnerability, on the basis of agreed indicators which can be subsequently used by MWI staff to determine priorities for action and application in the pilot area of Amman-Zarqa;
3. Preparing drought hazard maps and vulnerability maps in the pilot area of Amman-Zarqa;
4. Technical training of the MWI staff (and related actors such as the Drought Management Unit - DMU) on: (a) drought monitoring and early warning system, and (b) on the application of the "Water Evaluation and Planning" (WEAP) system in drought risk management;
5. Initiation and first results for a participatory approach with stakeholders in the Amman-Zarqa pilot catchment to define and contribute to elements of the Drought Risk Management Plan - DRMP (i.e. definition of targets, preliminary list of proactive measures, definition of actions and roles, identification of entry points for mainstreaming the DRMP and synergies with other sectors and policies);
6. Action Plan for the development of the Amman-Zarqa pilot catchment DRMP and draft contents/structure of the DRMP.



4 SCOPE OF WORK

4.1 TASKS TO BE EXECUTED

In order to be able to define proactive measures for drought risk management, a drought risk profile of areas of interest needs to be developed first, analyzing and characterizing the hazard and related vulnerability of the affected communities and systems, and having a good knowledge of the specific impacts on the different sectors. On this basis, targets and measures for reducing vulnerability can be defined, also through a participatory approach so that their acceptability is strengthened. As such, a stepwise approach is followed, so that the identified measures are tailored to the Jordanian context, rather than being generic. This stepwise approach can lead to the development of a holistic DRMP for Jordan. The ESF-JO-1 activity's tasks are summarized in Table 4-1 below and presented in detailed in this section.

Table 4-1: Overview of the EFS-JO-1 Activity tasks

Task #	Task short description
Task 1	Review of the recent progress made in Drought Management through the ongoing UNDP project, study and review of the up-to-date outcomes.
Task 2	Drought Identification and characterization in the Amman-Zarqa catchment: adjustment and further development of the drought hazard indicators (and/or composite indices as proposed in UNDP project. Investigate indicators that can potentially be used for early warning at the local level. Application to the Amman-Zarqa catchment.
Task 3	Establishment of Drought Vulnerability Indicators (and/or composite indices) in Amman-Zarqa catchment: explore, adjust and further develop the drought vulnerability indicators (and/or composite indices) as proposed in the UNDP Project. Application to Amman-Zarqa catchment.
Task 4	Technical training on drought monitoring and early warning system.
Task 5	Review and assess the current capacity of the WEAP at MWI. Train relevant MWI staff on setting up and calibrating the WEAP model for a selected sub-catchment in Amman-Zarqa Basin. Train the staff on the WEAP as a tool for supporting drought management. Prepare documentation for the Amman-Zarqa WEAP Model.
Task 6	Towards the development of a Drought Risk Management Plan (DRMP) for the Amman-Zarqa catchment (Consultation Workshop).



Task 1: Review of the recent progress made in Drought Management through the UNDP ongoing project, study and review of the up-to-date outcomes

Under this task the Consultant will review the various outcomes and products of the UNDP project in order to get a better insight of the implemented work and streamline accordingly the products of the current ToR. The information/ documents will be gathered by the Partner Country (PC) and provided to the SWIM expert(s). It is important that the PC provides to the Consultant the pertinent reports on the methodology as well as results (e.g. final list of selected indicators) so that the Consultant can properly implement the tasks of the current ToR in complementarity. It is also very important that the Consultant is in direct communication with the technical personnel that are implementing / coordinating the UNDP project; of course under the supervision of the MWI. This activity also involved a kick-off meeting with the National Focal Point and officers of the Ministries to be involved in the activity (realised on 13/07/2017), to define the basis of work, specificities and the time-plan of Tasks 1 to 6, while additional bilateral meeting with the MWI will be planned if deemed necessary.

Expected Deliverable: An Inception Report on the tasks to be performed (specificities of the task, working plan, synergy with the UNDP), presenting the elements of synergy with the UNDP.

Task 2: Drought Identification and characterisation in the Amman-Zarqa catchment

The Consultant will adjust and further develop drought indicators (and/or composite indices) as proposed by UNDP which can be used for drought identification and characterization, incorporating different hydrological elements, such as surface water flows, spring discharge, groundwater level and level of water reservoir, tailored for the Amman-Zarqa catchment. Indicators which can potentially be used for early warning will also be investigated. On the basis of these indicators a Drought Monitoring System (DMS) will be further elaborated as stated in the UNDP project with a focus on the Amman-Zarqa catchment, including guidelines on how to use the indicators (individually and synergistically) (incl. monitoring frequency, responsibilities' allocation among the involved actors, etc.), how to operate the system and conduct periodic assessments of drought conditions (e.g. drafting a drought bulletin targeting decision-makers and the general public so that they are aware of drought as soon as it begins). On the basis of the above indicators, an assessment of drought duration, severity, intensity and drought spells will be conducted in the pilot catchment of Amman-Zarqa in Jordan. The indicators will also be streamlined with the UNDP indicators, but some additional may be proposed in case it is necessary (depending on the specificities of the catchment) since we are hereby zooming at the local level

The collection of the data (time series) necessary for analyzing and developing the drought indicators (of Task 2) and transfer of these data to the SWIM experts will be undertaken by the PC.

Note: It is assumed that the data (time series) necessary for analyzing and developing these indicators are adequate and provided to the Consultant in an adequate format and in due time to realize this task.

Expected Deliverable: A Report describing in detail the Drought Monitoring System (DMS) and its indicators/ indices, including guidelines for calculating the indicators, for operating the system and conducting periodic assessments of drought conditions (e.g. drafting a drought bulletin) in the Amman-Zarqa catchment. The Report will contain the results of the application of the DMS indicators in the



Amman-Zarqa, including the identification/ mapping of drought characteristics of the pilot area (using the aforementioned drought indicators of the DMS).

Task 3: Establishment of Drought Vulnerability Indicators (and/or composite indices) for the Amman-Zarqa catchment

Under this task, the relation between the physical extent of drought, water availability, abstractions pressures, and the level of community vulnerability will be addressed. The Consultant will adjust and further develop drought vulnerability indicators (and/or composite indices) as proposed by UNDP (if these are developed in time to be streamlined with the SWIM-H2020 SM timeplan), tailored for the Amman-Zarqa catchment, provided that the pending UNDP publication will be submitted by the time Task 3 is about to commence. The Drought Vulnerability Indicators/Indices can be subsequently used by MWI staff to determine priorities for action and to monitor progress towards targets (i.e. is vulnerability reduced?). The vulnerability components will be streamlined with the UNDP methodology (provided this is made available to the Consultant in time). The collection of the data necessary for analyzing and developing the drought vulnerability indicators (of Task 3) and transfer of these data to the SWIM experts will be undertaken by the PC.

Note: It is required that the data necessary for analyzing and developing these indicators are adequate and provided to the Consultant in due-time and in an appropriate format

Expected Deliverable: A Report describing the selected vulnerability indicators, including guidelines for calculating the indicators. The Report will contain the results of the application of the vulnerability indicators in the catchment of Amman-Zarqa, including the identification/ mapping of drought vulnerability of the pilot area (using the aforementioned indicators).

Note: the “Report on Drought Vulnerability” could potentially be merged with the Task 1 “Report on the DMS”

Task 4: Technical training on drought monitoring and early warning system

This task will involve a four-days technical training (offered by the Consultant) for stakeholders of the Amman-Zarqa catchment and officers of MWI (and/or other relevant institutions such as the MoA DMU) involved in drought monitoring, to improve the existing drought monitoring practices, their capacity to run the Drought Monitoring System (DMS) and to calculate the indicators in other basins/ areas. The NKE will prepare the training material for this session and the report.

The country will provide the facilities where the training will be held and will also handle the invitations, organization and the workshop logistics. The training could be combined with a relevant training of the UNDP project if deemed appropriate.

Expected Deliverables: Training agenda, Training material including hands-on exercises and Training Report as per SWIM-H2020 SM requirements and template.

Task 5: Review and assess the current capacity of the WEAP for Amman Zarqa Basin. Train relevant MWI staff on setting up and calibrating the WEAP model for a selected sub-catchment in



Amman-Zarqa Basin. Documentation of the WEAP model for Amman Zarqa basin. Train the MWI staff on the “WEAP” simulation model, as a tool for supporting drought management

This task will involve the following:

- Review and assess the current capacity of the WEAP model available at MWI for Amman Zarqa Basin. Identify any gaps in the current simulation and existing conceptual model and in the data needed for adequate simulation (focusing on the pilot area of Amman-Zarqa Basin) and indicating the required model enhancements.
- Conduct 3 days on-job training for relevant MWI staff, to set up the WEAP model for a selected sub-catchment in Amman-Zarqa Basin (building a demo example) covering the gaps and improving WEAP results to show the complete hydrological processes and linkages to drought risk/vulnerability. Jointly with MWI staff, calibrate the demo model and establish linkages as necessary with drought management planning. The conceptual design of the model shall include the calculation of irrigation demand requirements, hydrological analysis for Amman-Zarqa Basin, water balancing and the potential use of WEAP output for drought management. The model will be enhanced with the new elements that have come up through WEAP's newest version to analyze and delineate the hydrological basin. Prepare training material and agenda to enable the expansion to other sub-catchments within the basin. Additionally, documentation on the WEAP Amman Zarqa model will also be prepared, providing a full description of the model elements, key assumptions and process embedded in the calculations, so it is easier for the MWI staff to understand it and update/expand it in the future.
- Conduct five (5) days of on-job Training for targeted staff in the MWI involved in drought management/ water resources management and planning, hydrological and water balance modeling (e.g. Water Policy Directorate), to enable the staff to test the application of the WEAP under drought conditions and to expand the application of the demo to the whole basin. The training will include data entry for all rainfall-runoff and hydrological parameters, demand parameters and exploring the outputs in support of drought management and policy making scenarios, using initially the results of the Demo.

Note: It is assumed that the data necessary for calibrating and running the demo model will be provided in an adequate format and will be ready in due time to realize the training. The country will also provide the facilities where the training will be held.

Expected Deliverables: Documentation of the gaps in the WEAP model for Amman Zarqa Basin and recommended model improvements and additional data if needed. WEAP improved demo for Amman-Zarqa basin. Two training workshop agendas. Training material and documentation for the two trainings. Two training workshop reports, two on-job trainings. Documentation of the WEAP model for Amman Zarqa basin.

Task 6: Towards the development of a Drought Risk Management Plan (DRMP) for Amman-Zarqa catchment.

This Task will assist in defining the methodological steps and actions to be followed towards developing a DRMP for the Amman-Zarqa catchment (Roadmap). This Roadmap will build on the priorities, actions



and measures identified by the UNDP in their report “The National Drought Management Plan in Water Sector”, looking at the specificities of the Amman-Zarqa catchment, and will be thus tailored accordingly. A participatory approach will be undertaken and a one-day consultation workshop will be conducted, bringing together the relevant stakeholders to identify: (a) targets (based on the drought hazard and vulnerability outputs of Tasks 2, 3), (b) proactive measures for DRM across different sectors (initial proposal, subject to further screening), (c) actions and roles, (d) entry points for mainstreaming the DRMP and synergies with other sectors and policies. The Partner Country is expected to steer the participatory approach, in terms of identification and invitation of the key actors and stakeholders, pursue and motivate the participants, distribute the provided material and information packages on time, etc. The Country will also be responsible for organizing the consultation workshop, inviting and bringing together all relevant stakeholders, providing the facility (e.g. at the Ministry, or another centrally located facility) and taking care of the logistics (invitations, organizational issues, etc.). The Consultant will provide the expert(s) who will facilitate the consultation workshop. The workshop could be combined with a relevant event of the UNDP project if deemed appropriate.

Expected Deliverables: Action Plan for the development of Amman-Zarqa catchment DRMP, including the draft contents/ structure of the DRMP (depending on the progress made during the participatory approach); Consultation Report on the outcomes of the participatory approach (tentative targets, first list of measures, actions and roles’ allocation, entry points and synergies) as per SWIM-H2020 SM requirements and template.

An Ex-post assessment of the impact of the capacity building components of the activity (Tasks 4, 5, 6), on the participants and beneficiaries involved may also be carried out. The project’s Stakeholder Engagement Expert, would be contacted during the design phase of the consultation and training sessions (Tasks 4, 5, 6), by the NKEs implementing these tasks, to ensure that (a) the proper trainees/stakeholders benefit from the project, and (b) the ex-post assessment of this activity’s capacity building component is properly performed.

4.2 TIMEPLAN AND LEVEL OF EFFORT

The EFS-JO-1 activity is scheduled to start immediately, upon approval of the revised ToR following this Inception Report, and will be finalised in about 14-15 months.

The two Training Workshops, being part of Tasks 4 and 5, are scheduled to take place back-to-back within July-September 2018, while the stakeholders’ Consultation Workshop is anticipated to take place towards October-November 2018. An indicative time table for the duration of the intended activities is shown below:



Table 4-2: Timetable of the EFS-JO-1 tasks

Task	2017			2018												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
TOR approval/Contracting																
Task 1: Review of the recent progress made in Drought Management through the ongoing UNDP project																
Task 2: Drought Identification and characterisation in Amman – Zarqa catchment																
Task 3: Establishment of Drought Vulnerability Indicators (and/or composite indices) in Amman-Zarqa catchment																
Task 4: Technical training on drought monitoring and early warning system																
Task 5: Review and assess the current capacity of the WEAP at MWI. Train relevant MWI staff on setting up and calibrating the WEAP model for a selected sub-catchment in Amman-Zarqa Basin.																
Task 6: Towards the development of a Drought Risk Management Plan (DRMP) for Jordan																



Level of Effort: The Consultants' input is expected to be 127 mandays (including the six on-site expert days that has been already consumed as part of the kickoff meeting); as per the following table. The expert days (On-site and at the Experts' Home Base) are presented in the following table and shared between Senior and Junior Non-Key Experts

Table 4-3: Level of Effort (LOE) of the EFS-JO-1 tasks per expert

TASKS	LOE required by each expert (Senior expert-days)				LOE required by each expert (Junior expert-days)		
	Drought Hazard NKE		Drought Vulnerability NKE		GIS NKE	WEAP Expert	
	Home Base	On-site	Home Base	On-site	Home Base	Home Base	On Site
Task 1	4	3 (2 days for travel and 1 day attending the Kick off meeting)	1	3 (2 days for travel and 1 day attending the Kick off meeting)			
Task 2	31						
Task 3			19		8	7	
Task 4	8	6 (2d for travel, 4d for training)					
Task 5						7	8 training
Task 6	6	3 (2 for travel and 1 for consultation)	10	3 (2 for travel and 1 for consultation)			
LOE per expert	49	12	30	6	8	14	8
	61		26		8	22	
Total LOE	127						
	<p>Ex-post assessment of the capacity building component's impact: The Level of Effort for the Ex-Post assessment actions refer to man-days already approved by the Stakeholder Engagement Non Key Expert's TOR (approved: 17/3/2016).</p>						



5 DELIVERABLES AND REPORTS

5.1 DELIVERABLES

The deliverables per task are presented in the Table below. The language of the reports will be English. They will be submitted (according to the format provided by the SWIM-H2020 SM) in electronic form to the Water Key Expert, who is responsible for approving the reports.

Task	Deliverables
Task 1	Inception Report on the tasks to be performed (specificities of the task, working plan, synergy with the UNDP), presenting the elements of synergy with the UNDP.
Task 2	Report on the Drought Monitoring System (DMS): A Report describing in detail the Drought Monitoring System (DMS) of the Amman-Zarqa catchment and its indicators/indices, including Guidelines for calculating the indicators, for operating the system and for conducting periodic assessments of drought conditions (e.g. drafting a drought bulletin). The Report will also contain the results of the application of the DMS indicators in the Amman-Zarqa, including the identification/ mapping of drought characteristics of the pilot area (using the aforementioned drought indicators).
Task 3	Report on Drought Vulnerability: A Report describing the selected vulnerability indicators, including guidelines for calculating the indicators for the Amman-Zarqa catchment. The Report will contain the results of the application of the vulnerability indicators in the catchment, including the identification/ mapping of drought vulnerability of the pilot area (using the aforementioned indicators) Note: the "Report on Drought Vulnerability" could potentially be merged with the Task 1 "Report on the DMS"
Task 4	Training agenda Training material (including hands-on exercises) Training Report as per SWIM-H2020 SM requirements and template
Task 5	Two Training agendas Two Training material (Including hands-on exercises) Two Training Reports as per SWIM-H2020 SM requirements and template Documentation of the WEAP model for Amman Zarqa basin.
Task 6	- Action Plan for the development of the Amman-Zarqa DRMP , including the draft contents/ structure of the DRMP (depending on the progress made during the participatory approach)



Task	Deliverables
	<ul style="list-style-type: none">- Consultation Workshop Report as per SWIM-H2020 SM requirements and template describing the outcomes of the participatory approach (tentative targets, first list of measures, actions and roles' allocation, entry points and synergies) <p>Note: the Action Plan will be integrated in the Consultation Workshop Report</p>

5.1 OUTLINE OF THE REPORTS

Task 2 - Report on the Drought Monitoring System (DMS): This Report will describe in detail the Drought Monitoring System (DMS) and its indicators/ indices, including Guidelines for calculating the indicators, for operating the system and for conducting periodic assessments of drought conditions (e.g. drafting a drought bulletin). The Report will also contain a dedicated “Case-Study Chapter” with the results of the application of the DMS indicators in a pilot river basin in Jordan, including the identification/ mapping of drought characteristics of the pilot area. Its outline will be the following:

- 1 Abstract
- 2 Objectives and usability of the DMS in the Amman-Zarqa catchment
- 3 Drought Hazard Indicators
 - 3.1 Indicator A (purpose, methodology, calculation)
 - 3.2 Indicator B (purpose, methodology, calculation)
 - 3.3 Indicator C, D...
- 4 Early Warning Indicators (*provisional chapter*)
- 5 The Drought Monitoring System
 - 5.1 System components
 - 5.2 System operation and updating
 - 5.3 Output products (e.g. Drought Bulletin)
- 6 Results of the implementation in the Amman-Zarqa catchment
 - 6.1 General description of the pilot area
 - 6.2 Drought hazard characterisation and mapping
- 7 Conclusions
- 8 References
- 9 Annexes (spread sheets with the indicators)

Task 3 - Report on Drought Vulnerability: This Report will describe the vulnerability indicators, including guidelines for calculating the indicators. The Report will contain a dedicated “Case-Study Chapter” with the results of the application of the vulnerability indicators in a pilot river basin in Jordan,



including the identification/ mapping of drought vulnerability of the pilot area. Its outline will be the following:

- 1 Abstract
- 2 Objectives and usability of the Drought Vulnerability Analysis
- 3 Drought Vulnerability Indicators
 - 3.1 Indicator A (purpose, methodology, calculation)
 - 3.2 Indicator B (purpose, methodology, calculation)
 - 3.3 Indicator C, D...
- 4 Drought Vulnerability mapping
 - 4.1 Methodology for blending the indicators
 - 4.2 Output products (e.g. Drought Bulletin)
- 5 Results of the implementation in the Amman-Zarqa catchment
 - 5.1 General description of the pilot area
 - 5.2 Drought vulnerability characterisation and mapping
- 6 Conclusions
- 7 References
- 8 Annexes (spreadsheets with the indicators)

Task 4 and 5 - Training reports: These Training Reports (for Task 4 and Task 5) shall be submitted in English (according to the format provided by the SWIM-H2020 SM) in electronic form. Its outline will be the following:

- 1 General introduction
 - 1.1 Rationale of the Activity
- 2 Objectives of the Activity
- 3 Expected Results of the Activity
- 4 Profile of the Participants
- 5 Evaluation of the Event
- 6 Analysis of the Results of the Training course
- 7 Conclusions & Overall Assessment
- 8 Annexes
 - 8.1 Agenda
 - 8.2 List of Participants
 - 8.3 Exercises/tests/pre-assignments, etc.



Task 6 - Consultation Workshop Report: The Consultation Report will describe the outcomes of the participatory approach (tentative targets, first list of measures, actions and roles' allocation, entry points and synergies). It will include the following sections:

- 1 General introduction
- 2 Objectives of the Activity
- 3 Profile of the Participants
- 4 Results of the Consultation (tentative targets, first list of measures, action plans: actions and roles' allocation, entry points and synergies, etc.).
- 5 Evaluation of the Event
- 6 Conclusions & Overall Assessment
- 7 Annexes
 - 7.1 Agenda
 - 7.2 List of Participants