



This Project is funded  
by the European Union

**Water and  
Environment Support**  
in the ENI Southern Neighbourhood region



# N-W-IL-2/Storm Water Management and Natural Water Retention Measures

## Workshop Summary Report

Deliverable Number: D1-2

Version	Document Title	Author	Review and Clearance
v.1	Workshop summary report	Demetris Zarris	Nov. 2020

## **WATER AND ENVIRONMENT SUPPORT IN THE ENI SOUTHERN NEIGHBOURHOOD REGION**

The "Water and Environment Support (WES) in the ENI Neighborhood South Region" project is a regional technical support project funded by the European Neighbourhood Instrument (ENI South). WES aims to protect the natural resources in the Mediterranean context and to improve the management of scarce water resources in the region. WES mainly aims to solve the problems linked to the pollution prevention and the rational use of water.

WES builds on previous similar regional projects funded by the European Union (Horizon 2020 CB/MEP, SWIM SM, SWIM-H2020 SM) and strives to create a supportive environment and increase capacity all stakeholders in the partner countries (PCs).

The WES Project Countries are Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Libya, Palestine, Syria and Tunisia. However, in order to ensure the coherence and effectiveness of EU funding or to promote regional cooperation, the eligibility of specific actions can be extended to neighboring countries in the Southern Neighborhood region.

*DISCLAIMER:*

*This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the WES Project and do not necessarily reflect the views of the European Union.*

*To ensure the visibility of the EC and the project, please follow the EU visibility guidelines as described here [https://ec.europa.eu/international-partnerships/comm-visibility-requirements\\_en](https://ec.europa.eu/international-partnerships/comm-visibility-requirements_en).*



## TABLE OF CONTENTS

<b>1</b>	<b>BACKGROUND OF ACTIVITY.....</b>	<b>7</b>
<b>2</b>	<b>OBJECTIVES OF THE WORKSHOP .....</b>	<b>8</b>
<b>3</b>	<b>RESULTS OF THE WORKSHOP .....</b>	<b>9</b>
<b>4</b>	<b>PROFILE OF THE PARTICIPANTS .....</b>	<b>9</b>
<b>5</b>	<b>EVALUATION OF THE EVENT .....</b>	<b>10</b>
5.1	RESULTS OF THE EVENT .....	10
<b>6</b>	<b>CONCLUSIONS &amp; OVERALL ASSESSMENT .....</b>	<b>14</b>
<b>7</b>	<b>ANNEXES .....</b>	<b>15</b>
7.1	AGENDA .....	15
7.2	LIST OF PARTICIPANTS .....	ERROR! BOOKMARK NOT DEFINED.

## LIST OF TABLES

TABLE 5-1: WORKSHOP ASSESSMENT BY THE PARTICIPANTS FOR THE CRITERIA A1 - A7.....	11
TABLE 5-2: REMARKS OF THE PARTICIPANTS.....	14

## LIST OF FIGURES

FIGURE 4-1: REPRESENTATION OF PARTICIPANTS PER TYPE OF INSTITUTION .....	10
FIGURE 4-2: GENDER BALANCE AMONG THE PARTICIPANTS .....	10
FIGURE 5-1: FLOW OF PROGRAMME, HANDLING OF EMERGING NEEDS (A.2).....	11
FIGURE 5-2: PLANNING OF WORKSHOP: EFFICIENT AND EFFECTIVE COMMUNICATION OF OBJECTIVES (A.3) .....	11
FIGURE 5-3: EVALUATION OF PRESENTATIONS (A.4).....	12
FIGURE 5-4: CLARITY, COVERAGE AND SUFFICIENCY OF CONCEPTS, .....	12
FIGURE 5-5: EFFICIENCY AND EFFECTIVENESS OF THE FACILITATION (A.6) .....	12
FIGURE 5-6: CONSULTATION WORKSHOP COVERAGE (B.1) .....	13
FIGURE 5-7: EFFICIENT AND EFFECTIVE PERFORMANCE AND INTERACTION WITH EXPERTS (B.2) .....	13
FIGURE 5-8: CONSULTATION WORKSHOP LENGTH (B.3).....	13

## ABBREVIATIONS

<i>NWRM</i>	Natural Water Retention Measures
<i>ToR</i>	Terms of Reference

## 1 BACKGROUND OF ACTIVITY

---

The State of Israel is characterized by a very small and narrow territory with extremely dense populated areas, especially along the shore of the Mediterranean Sea, as a consequence an accelerated process of increasing urbanization is taking place. This process is accompanied by a **reduction of recharge** to the groundwater sources and an **increase in storm water flows**. The loss of water yields to groundwater as a result of lack of natural infiltration areas caused by heavy urbanization and the runoff is estimated in tens of millions of cubic meters per year for the entire Coastal aquifer.

Management of **surface runoff in areas designated for construction** has in recent years been seen as an important planning goal for achieving **three main objectives**:

1. To prevent the loss of surface runoff resulting from sealed areas by infiltrating these runoff water and to contribute to the water resources, both in quantitative and quality ways.
2. To reduce the storm water flows that reach the urban and regional drainage systems, thereby creating an opportunity to reduce the total volume (and the costs) to be treated and maintained by the municipal infrastructures.
3. To reduce pollution in streams, and coastal and marine pollution from the urban runoff's dissolved and suspended pollutants and solid waste (mainly plastics)

**Storm water management** has many secondary goals such as environmental and landscape contribution, erosion prevention and pollution prevention. Several ministries and planning committees at the regional and national levels have been working in recent years to promote guidelines and regulations that require the implementation of storm water management considerations at all planning levels.

Over the past decade, a number of **urban runoff management guides** have been written and in these days a **more updated guide is being prepared**. However, the State of Israel does not have an accepted practice for the conservation and management of the urban runoff. In 2010 the Israeli Water Authority has issued regulations to promote the capture of flood water and their infiltration into the water sources.

The definition of Natural Water Retention Measures (NWRM) as provided in the EU policy document states that NWRM are multi-functional measures that aim to protect water resources and address water-related challenges by restoring or maintaining ecosystems, as well as natural features and characteristics of water bodies using natural means and processes.

The main focus of applying NWRM is to enhance the retention capacity of aquifers, soil, and aquatic and water dependent ecosystems with a view to improve their status. The application of NWRM supports green infrastructure, improves the quantitative status of water bodies as such, and reduces the vulnerability to floods and droughts. It positively affects the chemical and ecological status of water bodies by restoring natural functioning of ecosystems and the services they provide. The restored ecosystems contribute both to climate change adaptation and mitigation.

As defined in the EU policy document on NWRM, NWRM

- Retain water (runoff or river flows) beyond the existing capacity of systems, releasing it at a controlled rate, or infiltrating it to groundwater;

- Use the retention capacity of soils and of aquatic ecosystems to provide other environmental and well-being improvements, such as water quality, biodiversity, amenity value or resilience and adaptation to climate change impacts;
- Are usually applied at relatively 'small scale', in comparison to the size of the water catchment or territory in which they are implemented;
- Emulate a natural process, although are not always 'natural' features themselves (as clearly illustrated by green roofs).

As a result, [Israel] has asked the WES Project to implement a national activity entitled "[Storm water management and Natural Water Retention Measures: Assess the potential in selected community/catchment/subcatchment (tbd).]"

The activity falls under topic 2: "Water Efficiency Gains at Decentralised Level" and subtopic 3.3: "Non-Conventional Water Resources - Water retention" and shall be implemented in line with the EU position on the Middle East Peace Process. To this effect, all NWRM proposed under this activity should not trigger any conflict/dispute on shared water resources between the parties.

As NWRMs is a relative new concept, a thorough analyses of different references from around the globe (books, textbooks, papers in international journals, technical papers, etc.) to categorize the different aspects of NWRMs according to the source of water and storage media of water gained. Not all NWRMs are applicable everywhere, therefore a screening procedure will be performed to further take into consideration those measures that are applicable in arid or semiarid areas and with restricted area availability.

The initial screening by the experts' team was evaluated during a one-day workshop (on the NWRM measures) that was held on 26 November 2020, whereby all the relevant stakeholders discussed inter-alia; the applicability of the initially selected measures to Israel (See also objectives of the workshop).

## 2 OBJECTIVES OF THE WORKSHOP

---

The objectives of the Workshop are the following:

1. To present and describe in detail the full list of the NWRMs published in various reports and guidelines (the European Union included) and their applicability and potential to arid and semi-arid areas including the Mediterranean. The full list of these measures is categorized in 4 different categories as follows: (a) Urban Areas, (b) Hydromorphology in River Systems, (c) Agriculture and Livestock, and (d) Forestry and Upland Areas.
2. To discuss other possible measures that will be tailored to the specific conditions of the country.
3. To discuss at an initial level the selection of the two pilot areas of Israel that NWRMs are going to be implemented at the feasibility level.

The Workshop is also important among the stakeholders to explore and understand their role in the activity and adjust their expectations at the end of this Activity.

### 3 RESULTS OF THE WORKSHOP

---

The main outcome of the consultation is that, due to the specific conditions of the country, it is expected that the major category of NWRMs that have a strong potential to be implemented is that of the Urban Areas. The other three categories attract less interest mainly because the extent of urban and peri-urban areas is significantly increasing and replacing open and natural areas in the country. On top of these, the fluvial environment of the country does not provide the ground to explore hydromorphological measures since most of them are heavily modified from their natural state.

Therefore, it was decided to change the second pilot case study. In the ToR, it was stated that the pilot cases would be among candidates from an urban area and a natural area. In view of the above, it was decided to change the second pilot case study from the natural area to a peri-urban area. A peri-urban area should be a combination of the urban measures on one hand and the other three categories on the other, depending on the surrounding area or the catchment area of the peri-urban case study.

Another point of interest that attracted a certain deal of discussion is the possibility of having pumping wells for human consumption in urban areas. This paradox is explained by the extension of the urban areas replacing natural areas. Therefore, it is highly possible that pumping wells for human consumption that was initially placed in a natural area is now occupied by an urban area. For each pumping station, a protection zone is determined where certain human activities are regulated according to the distance from the pumping well.

Eventually, it was discussed that the selection of the two pilot cases for NWRMs application must be limited to the areas that must be well away of the pumping wells' protection zones, in the case that these pumping wells are being used for human consumption.

### 4 PROFILE OF THE PARTICIPANTS

---

The total number of participants in the Workshop is fifteen (15) individuals including the WES personnel. A total of ten (10) colleagues from Israel have participated in the Workshop. Almost all of them (8) are representatives of the Governmental Authority for Water and Sewage of Israel, one from the Ministry of the Environment and one (1) from the Private Sector (see FIGURE 4-1).

Local and Regional Governments (e.g. Municipalities) and NGO's were not represented in the Workshop.

#### **Consultation Workshop Demographics**

Women are also underrepresented in the Workshop as only 30% of the total participants are women (see FIGURE 4-2).

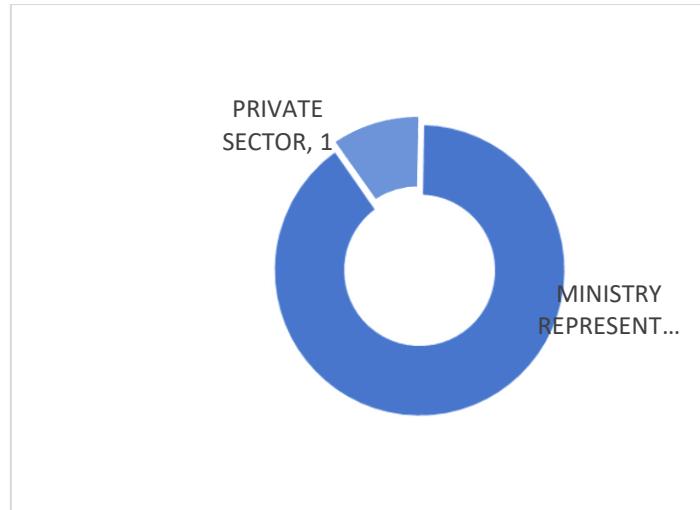


FIGURE 4-1: REPRESENTATION OF PARTICIPANTS PER TYPE OF INSTITUTION

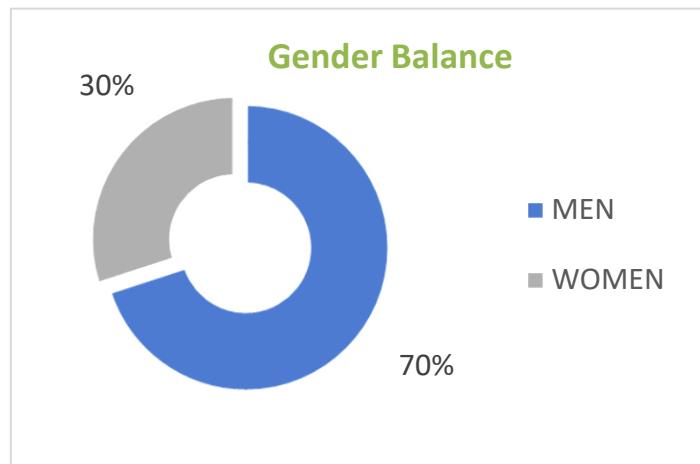


FIGURE 4-2: GENDER BALANCE AMONG THE PARTICIPANTS

## 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 5-1 below) were assessed by the participants, using a qualitative description ranging between “Excellent” to “Poor”.

The replies of the participants are also presented in TABLE 5-1

TABLE 5-1: WORKSHOP ASSESSMENT BY THE PARTICIPANTS FOR THE CRITERIA A1 - A7.

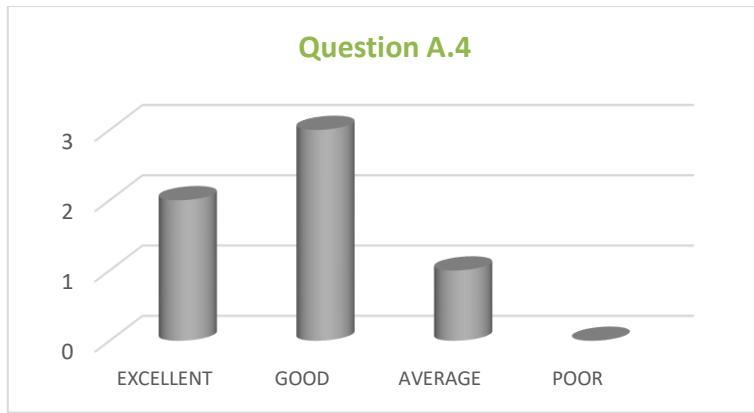
A. ORGANISATIONAL, ADMINISTRATIVE AND PLANNING ISSUES BEFORE AND DURING THE EVENT		EXCELLENT	GOOD	AVERAGE	POOR	Total Replies	Average Score (max = 4)
A1	Efficient logistics: location of venue and interpretation (where applicable)	2	4	0	0	6	3.33
A2	Smooth flow of programme, efficient handling of emerging needs and attentiveness to participants concerns	0	5	1	0	6	2.83
A3	Planning of the workshop: efficient and effective communication of objectives	1	4	1	0	6	3.00
A4	Presentations correspond and contribute to the planned objectives and are conducive to enhanced shared understanding and participation on addressed topics	2	3	1	0	6	3.17
A5	Clarity, coverage and sufficiency of concepts, objectives, anticipated outputs	1	3	2	0	6	2.83
A6	Efficiency and effectiveness of the facilitation	1	4	1	0	6	3.00
A7	Overall rating of the event	2	3	1	0	6	3.17

Unfortunately, only 6 of the participants have responded to the evaluation sheet. The above criteria are presented by pie charts in the flowing figures. It can be realized that the majority of the answers fall within the category "Good" and the overall rating of the event has a grade 3.17 (maximum 4.0) which is characterized as a satisfactory evaluation.



FIGURE 5-1: FLOW OF PROGRAMME, HANDLING OF EMERGING NEEDS (A.2)

FIGURE 5-2: PLANNING OF WORKSHOP: EFFICIENT AND EFFECTIVE COMMUNICATION OF OBJECTIVES (A.3)



**FIGURE 5-3: EVALUATION OF PRESENTATIONS (A.4)**



**FIGURE 5-4: CLARITY, COVERAGE AND SUFFICIENCY OF CONCEPTS,  
OBJECTIVES, ANTICIPATED OUTPUTS (A.5)**



**FIGURE 5-5: EFFICIENCY AND EFFECTIVENESS OF THE FACILITATION (A.6)**

#### B. Feedback by participants on technical aspects:

Questions B1 to B4 have to do with technical aspects of the workshop. In B-1 question 4 out of the 6 responds note that some topics covered were not necessary.

In B-2 question “Efficient and effective performance and interaction with Experts hosting the consultation meeting” 5 out of six participants grade the meeting as Excellent or Good.

Regarding Question B-3, 5 out of 6 noted that the length of the meeting was sufficient.

Regarding Question B-4, 4 out of 6 participants noted that the level of achievement of planned objectives is “Excellent” or “Good”.

Regarding Question B-5, just one participant replied who stated that “the presentation where very professional and complete.



FIGURE 5-6: CONSULTATION WORKSHOP COVERAGE (B.1)

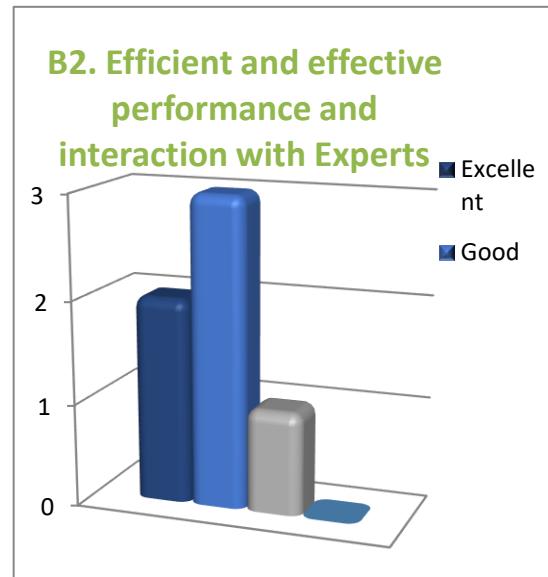


FIGURE 5-7: EFFICIENT AND EFFECTIVE PERFORMANCE AND INTERACTION WITH EXPERTS (B.2)

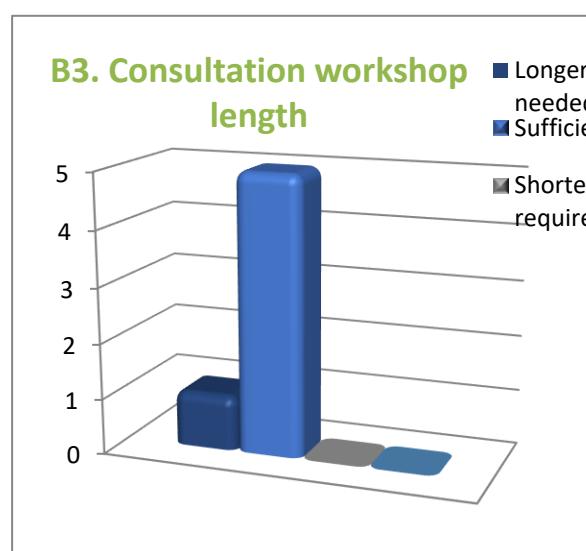
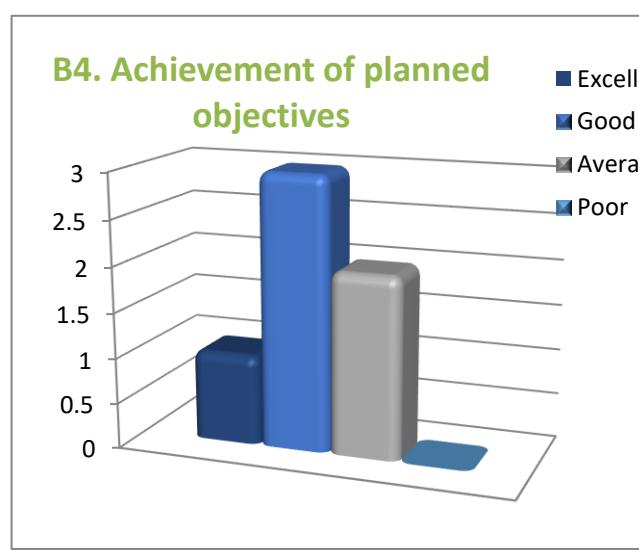


FIGURE 5-8: CONSULTATION WORKSHOP LENGTH (B.3)



LEVEL OF ACHIEVEMENT OF PLANNED OBJECTIVES (B.4)

In the following TABLE 5-2 the remarks of the participants are presented.

TABLE 5-2: REMARKS OF THE PARTICIPANTS

Summary of most frequent statements made by the participants			
B5	What did you like most about this event?		
	<i>The presentation was very professional and complete</i>	1	
	No reply	5	
B6	What needs to be improved?		
	No reply from all the participants		

#### C. Feedback by the NKE on technical aspects:

It was prominent and it was clearly stated the commitment of the country to fully implement the activity. There was a detailed discussion with the personnel from the Governmental Authority for Water and Sewage on the criteria of the selection of the pilot case studies in this Activity as it is presented above in this Report. They also presented their ideas on the project and it seems that the ideas of the NKE experts and the Israel counterparts are generally coinciding.

## 6 CONCLUSIONS & OVERALL ASSESSMENT

Finally, it can be concluded that the Workshop was a satisfactory event that it fully suffices the expectations and the requirements of the WES personnel as well as the Israeli representatives and the Focal Point.

Both parties have expressed their faith in the successful implementation of the Activity.

## 7 ANNEXES

### 7.1 AGENDA

#### Storm water management and Natural Water Retention Measures

**Activity No.: N-W-IL-2**

#### Workshop on Natural Water Retention Measures

**26 November 2020 - From 10:00 to 14:45 (Israeli Time)**

(Video-conference)

#### PROGRAMME

09:30-10:00	Access to the video-conference
10:00-10:15	<p><b>General Introduction</b></p> <ul style="list-style-type: none"><li>- <i>Structure of the workshop and technical instructions</i> <i>Ms. Suzan TAHA, Key Water Expert, WES (3 min)</i></li><li>- <i>Introductory notes</i> <i>Prof. Michael SCOULLOS, Team Leader, WES (7 min)</i></li><li><i>Mr. Guy Reshef, Deputy Director General (Hydrological Service, Israel Water Authority) on behalf of Olga Slepner; the focal point (5 min)</i></li></ul>
10:15-11:50	<p><b>Presentation of the activity and general discussion</b></p> <ul style="list-style-type: none"><li>- <b>Overview of the Water and Environment Support (WES) Project (5 min)</b> <i>Ms. Suzan TAHA, Key Water Expert, WES</i></li><li>- <b>Terminology - Natural Water Retention Measures (15 min)</b> <i>Dr. Demetris ZARRIS: Non-Key Expert (NKE1), specialised in Hydrology and Technical Coordinator representative of WES experts' Team</i></li><li>- <b>Review of Natural Water Retention Measures in Urban Areas (30 min)</b> <i>Dr. Demetris ZARRIS: Non-Key Expert (NKE1), specialised in Hydrology and Technical Coordinator representative of WES experts' Team</i></li><li>- <b>Review of Natural Water Retention Measures in Natural Areas (30 min)</b> <i>Dr. Demetris ZARRIS: Non-Key Expert (NKE1), specialised in Hydrology and Technical Coordinator representative of WES experts' Team</i></li></ul>

	- Q&A (15 min)
<b>11:50-12:00</b>	<b>Break</b>
<b>12:00-13:15</b>	<ul style="list-style-type: none"> <li>- <b>Assessment of the NWRMs efficiency (15 min)</b></li> </ul> <p><i>Dr. Demetris ZARRIS: Non-Key Expert (NKE1), specialised in Hydrology and Technical Coordinator representative of WES experts' Team</i></p> <ul style="list-style-type: none"> <li>- <b>Previous experiences<sup>1</sup> in NWRM of relevant Stakeholders (Presentation of past relevant projects in Israel and results (if any). Challenges and expected results from this activity) (1h).</b></li> </ul>
<b>13:15-13:30</b>	<b>Break</b>
<b>13:30-14:30</b>	<ul style="list-style-type: none"> <li>- <b>Applicability of the measures in Israel and conclusions on the ensemble of NWRMs that are to be practiced (60 minutes)</b></li> </ul> <p><i>Ms. Suzan TAHA, Key Water Expert, WES</i></p> <p><i>Dr. Demetris ZARRIS: Non-Key Expert (NKE1), specialised in Hydrology and Technical Coordinator representative of WES experts' Team</i></p>
<b>14:30-14:45</b>	<ul style="list-style-type: none"> <li>- Restitution &amp; Closure</li> <li>- the way forward (potential pilot areas and their selection)</li> </ul>
<b>14:45-15:00</b>	<ul style="list-style-type: none"> <li>- <b>Workshop Evaluation</b></li> </ul>

<sup>1</sup> There will be room for short presentations for those willing

