



Training Report

Regional activity on Solid Waste Management: Study Tour and Peer-to-Peer exchange

**WP3, ST-1: Visit to different types of state-of-the-art Solid Waste Management Facilities:
Construction & Demolition Waste**

**WP2, P2P-1: New tendencies in dealing with Municipal Solid Waste Management including
regulatory aspects** *(focus on aspects of Construction & Demolition Waste)*

Version	Document Title	Author	Review and Clearance
1	Training Report. Regional activity on Solid Waste Management: Study Tour and Peer-to-Peer exchange	Françoise Bonnet Lisa Labriga Essam Nada	Anis Ismail Michael Scoullos



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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ABBREVIATIONS

CDW	Construction and demolition waste
C&D	Construction and demolition
MoEP	Ministry of Environmental Protection
BAMB	Building as Material Banks



1 GENERAL INTRODUCTION

The selection of the Project themes and activities was made according to the Work Programme of Horizon2020 (2015-2020), developed during phase I of the project Horizon 2020 CB/MEP, the ToRs for SWIM-H2020 SM issued by the European Commission and the views expressed by the countries and stakeholders during the fact finding missions (inception phase). The Project Workplan was approved at a first step by the EUDs and the Commission and endorsed at a second step during the Steering committee meeting held in Brussels (27-28 September 2016).

A total of 15 (fifteen) regional on-site training activities and 6 (six) study tours with participants from most/all PCs were incorporated in the Project Work Plan. In order to establish adequate linkage and synergy between all activities, the activity described herewith took into consideration and connected to the extent possible, with the respective topics and activities to be carried out in some beneficiary countries at national level under WP1: Expert Facility. This activity also was implemented in connection with the activity P2P-1: New tendencies in dealing with Municipal Solid Waste Management including regulatory aspects.

This activity was implemented under the H2020 Component and clustered in the Project Work Plan under WP3: Training Activity, ST-1: Study Tour to visit different types of state-of-the-art Solid Waste Management Facilities. This activity was implemented under the “Solid Waste Management” theme and the selected topic is “Construction & Demolition Waste”.

The Solid Waste Management theme of the project covers the implementation of policy development, technical assistance and capacity building activities on several solid waste aspects including: institutional, policy, financial and legislative issues, as well as communication, and PPP arrangements. This study tour on construction & demolition waste was developed to inform about the state of the art technology, organization and practices of handling construction & demolition waste, moving from low to high levels of recovery and recycling of construction & demolition waste, including treatment and disposal technologies taking into account also the energy demands and saving potentials.

This study tour was intended to inform about how to maximize the sustainability of construction & demolition waste management, to demonstrate that the design/processes/operations will lead to reductions in the environmental impact of construction & demolition waste and to demonstrate good/best practice in the environmental performance of site activities.



1.1 RATIONALE OF ACTIVITY

Economic growth, increasing living standards and rapid urbanization and expansion of “infrastructures” (roads, airports, etc.) have brought a construction “fever” in most of the countries of the region, which resulted in a considerable increase of construction & demolition (C&D) waste throughout the region.

For instance: in Egypt¹ although the existing legislation is considered relevantly sufficient for the management of C&D waste, its implementation is not effective and the enforcement is erratic. Several construction activities are carried out without permit, since there is lack of services and adequate funds for the surveillance and control. It is estimated that in 2012, 4 million tons of C&D waste were generated in the country, which were mainly diverted to landfills, or dumped in unauthorized sites. In Tunisia there is a lack of statistics on deposits. The origin of the waste and the annual growth rate are not known. Based on a 2004 study, the average production of demolition waste in the three major cities (Tunis, Sousse and Sfax) is 0,700 tons/capita/year. The waste generated during a year can be estimated at 4 million tons. Over the past years, the quantity of this type of waste and anarchic deposits increased excessively, following illegal construction and a severe lack of monitoring and legal control. The country urgently needs a national plan for C&D management, applicable at community level, since currently such C&D waste is disposed of without planning, in open spaces, public or even private, without authorization. Then the municipalities have to remove this waste from public spaces, at high cost and they cannot cope with that successfully. There are a number of initiatives to counter the problem, but a systematic and economically sound approach is still missing. In Lebanon C&D waste is considered and treated like ordinary municipal waste and no special management provisions exist. Also in Mauritania there are no provisions for C&D waste management, which is the sole responsibility of the producers. In Palestine there is a law for C&D waste, prohibiting unsound disposal, but it is not enough for the actual management of such waste. In the West Bank C&D waste is not recycled, and there are no investments in this sector, whereas in the Gaza Strip, because of the limitations in construction materials, almost all C&D is recycled. In Morocco the annual amount of C&D waste is estimated to around 7 million tons per year, which are mainly disposed of in uncontrolled areas. It is noteworthy that, in the town of Rabat, there is the good practice, where a private company is collecting and processing approximately 90% of the relevant waste produced in the commune. The rest of the country faces a great challenge in managing C&D waste which is frequently dumped in public and other spaces all over the cities. There is a lack of interest/awareness of the public and absence of funds to address the problem. The adoption of a national plan for the management of these types of waste is considered essential for Morocco. In Israel the Cleanliness Law needs to be adjusted as C&D waste is not adequately addressed in it. No more new landfills are allowed so they are trying to give local authorities incentives for proper recycling. Local authorities have to be provided with the tools and capacity to deal with C&D waste. In Jordan a huge volume of C&D waste is being produced every year, but there are no strategies or known plans to handle and manage this kind of waste. Although there are strong restrictions for the dumping of such waste, still considerable quantities are being dumped illegally. The estimated volume of C&D waste received in the

¹ Challenges and opportunities for solid waste management in the Mashreq and Maghreb Countries (SWEEP-Net April 2014).



Greater Amman municipality disposal site is 2.6 million m³/year. The annual production of C&D waste in Algeria is rapidly increasing and has reached approximately 11 million tons. However, because of lack of appropriate spaces to receive this waste, there is a plan for creation of technical centres for this type of waste which could allow for waste management and recovery for use in construction at national level. There are currently 54 such operations registered to carry out this kind of treatment, among which 9 are completed and 6 are in operation.

2 OBJECTIVES OF ACTIVITY

The overall aim of the study visit in the framework of the regional activities on Solid Waste Management was to bring together the key stakeholders from the participating countries with selected experts, and provide a high-level field visit focusing on construction & demolition waste which included trainings/workshops, exercises and discussions.

The specific objectives of the study visit were to:

- Introduce to the participants an integrated approach to sustainable management of construction & demolition waste at local level based on EU standards and best practices;
- Visit four state-of-the-art construction & demolition waste management facility, of which one facility with simpler but effective technology;
- Provide the participants with a complete/comprehensive introduction of the construction & demolition waste management system as applied in Belgium;
- Enable, encourage, and facilitate dialogue and exchange of experiences between public authorities and other key stakeholders from the partner countries with those from Belgium;
- Promote sharing of experiences among the partner countries on construction & demolition waste management practices; facilitate exchanges and the development of synergies and complementary activities within the Mediterranean;
- Launch a peer-to-peer process for experience sharing at regional level and knowledge transfer (south-to-south, north-to-south) around construction & demolition waste management.

In order to achieve the above objectives, the SWIM-H2020 SM used the services of ACR+, RAED and LDK (hereinafter referred to as the Consultants). All the tasks assigned to the Consultant were undertaken in consultation with the SWIM-H2020 SM Environment Key Expert (KE) supervising this activity Mr. Anis Ismail (based in Tunis, Tunisia), and in coordination with the Team Leader (TL) Professor Michael Scoullas (based in Athens, Greece).



3 EXPECTED RESULTS OF ACTIVITY

- Key stakeholders of the partner countries are introduced: to EU legislative framework, as well as regulatory and economic instruments on sustainable construction & demolition waste management.
- Recent developments and innovative approaches on construction & demolition waste management via case studies covering: collection and transport; recycling options; developing the market of CDW; technical specifications/standards to allow them to be considered suitable for reuse/recycling and specific uses; risks and dangers involved/toxic and hazardous components to be avoided.
- A peer-to-peer process for experience sharing at the regional level and knowledge transfer (south-to-south, north-to-south) around sustainable construction & demolition waste management is launched, and priority themes/areas defined.
- A continuing regional dialogue on construction & demolition waste management issues is initiated between decision makers, experts and international technical experts, establishing the basis for the development of synergetic activities, regional cooperation, etc.

4 PROFILE OF THE PARTICIPANTS

The main target group included representatives of competent authorities and implementers who are involved in different aspects of construction & demolition waste management in the partner countries. Two to three representatives were targeted to be invited from each partner country as per the following:

- One representative from the National Ministry responsible for construction & demolition waste management.
- One representative from a local or regional public authority, ideally the Association of cities or equivalent.
- One representative from a company involved, NGO or other civil society organisation working in the field of construction & demolition or solid waste management.

In fact, the participating countries sent between three and five participants to the training. Among them one to three representatives from the National Ministry responsible for construction & demolition waste management. Furthermore all countries send either a representative from a local or regional public authority or from the association of local authorities or a representative from the private sector.

The project team had a very good impression of the group. The participants were well prepared, with good knowledge of the topic and almost all had a good or very good level of either French or English,



which facilitated their interventions during the presentations and site visits, as well as the communication with the other participants and with the trainers.

In order to test the agenda and to see if it was adapted to the knowledge of the participants, a small questionnaire was distributed to the participants in the final workshop. The short exercise showed that the participants were very attentive during the study visit presentations and site visits and remembered well key numbers and concepts discussed during the three days training.

5 STRUCTURE OF THE REGIONAL TRAINING

The regional training was comprised of a diverse mix of presentations, site visits related to recycling, site visits related to reuse, interactive workshops, and case studies from the participating countries. A good mix was kept between the different elements, please see for details here below:

Type of activity	Details	% of total training*
Site visits to CDW recycling facilities	<ul style="list-style-type: none">- Day 1: De Meuter Recycling – sorting of mixed waste from demolition (first sorting steps) (30min)- Day 1: ABR/De Meuter - recycling of the inert demolition waste (1h)- Day 1: Tienen facility SUEZ : sorting C&D waste into several pure fractions going to material recycling (1.5 h)	23 % (3h)
Site visit to a de-/re-construction project with reuse of construction material	<ul style="list-style-type: none">- Day 2: Visit of the Belgacom project and the Tivoli project (2 h)	15 % (2h)
Presentations (legal, economic, and technical aspects, legislation and policy) and Q&A (30min each)	<ul style="list-style-type: none">- Day 1: European legislation and standards- Day 2: CDW policy & management in Brussels- Day 2: CDW policy & management in Flanders- Day 2: Caroline Henrotay (IBGE): The BAMB project- Day 2: Presentation of an example of a building in the Chantiers circulaires call for projects- Day 2: Presentation of results from CSTC/CCBs study- Day 3: Think out of the box- Day 3: Focus on one material stream: reuse and recycling of flat glass used in construction	30 % (4h)
Interactive workshops	<ul style="list-style-type: none">- Day 1: Introduction round (30 min)- Day 3: Participant's feed-back and brainstorming: Lessons learnt & recommendations from the Study Tour (1.5 h)- Day 3: Introduction to peer-to-peer process (1 h)	23 % (3h)
Case studies from participating countries	<ul style="list-style-type: none">- Day 3: Case study presentations from participants (1 h)	13 % (1h)

* pure active periods, breaks, bus drives, lunches, etc. are not included



Day 1: Site visit in De Mauter and ABR/De Meuter facilities



Day 1: Site visit in Tienen facility SUEZ



Day 2: Visit of the Belgacom project and the Tivoli project





6 WORKSHOP RESULTS

Day 3 of the regional training was entirely dedicated to participants' brainstorming in order to collect feedback about lessons learnt and recommendations from the Study Tour. Three working groups were proposed to the participants:

- Policy and legislation (moderated by Françoise Bonnet)
- Technical (moderated by Essam Nada)
- Finances/economics and private sector (moderated by Anis Ismail)

Each participant had to choose one of them.

Each working group had the task to list the lessons learnt and to draft 5 key recommendations/measures to be taken.

During the last hour of Day 3, the peer-to-peer process was introduced to the participants and some of them had the possibility to present a case study explaining how demolition and construction waste are presently managed in their own country.

The results of the 3 working groups can be found hereafter.



Day 3: Introduction to peer-to-peer process

6.1 WORKING GROUP 1: POLICY & LEGISLATION

Since most of the participating countries representatives had no concrete policies and legislations for C&D waste or it is not efficiently applied, WG members had listed number of actions that should be conducted right after training. The recommendations of the Policy and Legislation WG could be summarized as follows:



- Forming an inter-sectorial committee for the development and implementation of a gradual and sustainable strategy for C&D waste management;
- Dealing with C&D waste as valuable materials which could be categorized in law as income generating resource;
- Initiating/enforcing the regulations that gradually ban landfilling of C&D waste, while -in parallel- enhancing legalize incentive policies for recycling and sorting at source;
- Securing a value chain by setting a reuse and recycling rate for recycled products used in public (buildings) works;
- Creating waste management control bodies in order to ensure the control and respect of the legislation.

6.2 WORKING GROUP 2: TECHNICAL

The members of Technical WG were inspired with the high standards of C&D waste processing in Belgium and how this process stimulates the real benefits of C&D waste starting from design the building. However, there were some doubts on the feasibility of replicating these valuable experiences in their respective countries as it needs essential changes in the infrastructure and the entire system of licensing passing through the dumping site.

The Technical WG worked on two aspects and summarized its conclusions as follows:

Lessons learnt:

- C&D waste sorting at source saves a lot of efforts and costs in proportional to transporting them without sorting to processing site (Technical and Financial benefits);
 - Virgin resource management in construction is an added value;
 - The demolition waste management is an integrated work starting from design, selection of the site, sorting plant, allocated factories and eventually marketing.
- The development of “materials passports” that includes sets of data describing defined characteristics of materials in products gives them value for recovery and reuse.

Recommendations:

- Making sure that the quality of the products complies with the national standards;
- Facilitating the establishment of markets for the C&D waste recycled items. Permission for particular utilization with certified Quality Control accordingly;
- Conducting awareness campaign to inform public and contractors about the benefits of considering the specifications of smart construction in buildings and promoting to the technical and financial benefits of using recycled C&D waste materials;
- Training the workers in the field of construction the principles of C&D waste management and processing;
- C&D waste management should be included in curricula to develop new generation of engineers and workers who are fully committed and well equipped for this crucial field.



6.3 WORKING GROUP 3: FINANCES/ECONOMICS & PRIVATE SECTOR

Private sector has been involved as main actor in the C&D waste management in Belgium and it was crystal clear that it operates the whole process in an ideal way. The private sector was represented in the training together with some economists who were enthusiastic to learn how to take part in such business when they get back home. However, they were - to certain extent – concerned by how domestic policies could help out in facilitating the success and sustainability of their willingness to carry on.

The Finances/Economics & Private WG concluded in setting up the lessons learned and the recommendations they reached as follows:

Lessons learnt:

- The Private sector is an essential player in the sites that were visited. The laws and regulations in place are supporting the sector in doing its job properly;
- All site operators did a feasibility study for the C&D waste's recycling in the market and valued them. Based on this analysis they designed their sites;
- The efficiency of comparing and compromising the price of the recycled material versus the virgin material was very high. This enabled the operators to get benefits and open new markets for their products.

Recommendations:

- Permissions and Policies should offer the business environment to encourage the private sector and economists to get actively involved;
- Necessity of making "Feasibility Study" to study the quantity of C&D waste in the market and value each item to invest without worries;
- Importance of having comparative analysis/study which calculates the quantity of C&D waste in the market and their cost and price as well as the price of the recycled material versus the virgin material;
- Building trust and developing mutual partnership between the private sector, government and other stakeholders through establishing specific body/steering committee to facilitate, supervise and eliminate the obstacles of C&D waste's Management;
- Need to ensure that environmental regulations are economically feasible.



6.4 PEER-TO-PEER FOLLOW-UP ACTIVITY ON C&DW: P2P-1

The latest session of the study tour was dedicated to discussing and initiating a peer-to-peer (P2P) process for experience sharing at regional level (south-to-south, north-to-south) and knowledge transfer on specific issues on Construction & Demolition Waste management (C&DW).

The purpose of the P2P session was to set lessons learned and success stories from this visit and to identify opportunities for consolidation of results and identification of synergies. After a presentation of the P2P process (methodology, roles, topics, outputs, timeframe, etc.), the moderators asked participants to suggest priority themes and to think about outputs and deliverables that peers will work on during a follow-up phase.

Several participants thus announced their interest in continuing the conversation on this theme and presented a number of potential topics that could be tackled (ex: the regulatory and normative aspects, the institutional and contractual arrangements for public-private cooperation, the aspects of financing and introduction of recycled products in the construction and public works market, etc.).

It was agreed that the choice of the topics and the candidates (countries and peers) be done in coordination with their respective countries after a debriefing on the results of the study tour with their respective ministries/institutions and in coordination with the H2020 Focal Points.

7 EVALUATION OF THE EVENT

The training evaluation received overall satisfactory notes ("good"). Most appreciated aspect was the organizational support and information sharing (average 3,62). It is worth to notice that the second highest value is attributed to "Presentations correspond and contribute to the planned objectives and are conducive to enhanced shared understanding and participation on addressed topics" (average value 3,14), thus testifying how the objectives of facilitating dialogue and exchange of experiences and promote sharing of experiences among the partner countries were fully reached. (See Annex 9.3: Evaluation of the event)

Participants expressed their satisfaction about field visits, providing discussion inputs to address the main elements to build a suitable C&D management system through the active involvement of private operators.

The meeting in Brussels Environment was generally highly appreciated. Participants appreciated the possibility of comparing with a C&D waste competent management authority and of knowing better their organizational principles and functions. Considering the perceived value of working groups, it seems that the P2P session was particularly effective to enhance the learning process.



8 CONCLUSIONS, OVERALL ASSESSMENT, AND RECOMMENDATIONS

Participants of training activities had a fruitful and very active dialogue, agreeing on some main recommendations to further develop the debate on C&D waste management in their countries. The main recommendations can be summarised as follows:

- All participants agreed on the importance to have an efficient collaboration between the public sector (in charge of putting in place an efficient policy and legal framework) and the private sector (similar to the Belgian recyclers which are all private companies);
- All participants agreed on the importance to develop “materials passports” including sets of data describing defined characteristics of materials in products that give them value for recovery and reuse, in order to secure a true circular economy in the building sector;
- All participants agreed on the importance on identifying solutions to promote source-sorting and of C&D waste in order to ensure quality and affordability of secondary raw materials;
- Importance of taking into account market needs and private stakeholders point of view in order to design a correct mix of policy levers to incentive C&D waste recycle and reuse

The three working groups highlighted specific recommendations on three areas (as already pointed out in chapter 6):

1. POLICY & LEGISLATION

- Forming an inter-sectorial committee for the development and implementation of a gradual and sustainable strategy for C&D waste management;
- Initiating/enforcing the regulations that gradually ban landfilling of C&D waste, while -in parallel- enhancing legalize incentive policies of recycling and sorting at source;
- Securing a value chain by setting a reuse and recycling rate for recycled products used in public buildings;
- Create a waste management control bodies.

2. TECHNICAL

- Making sure that the quality of the products complies with the national standards;
- Facilitating the establishment of markets for the C&D waste recycled items. Permission for particular utilization with certified Quality Control accordingly;
- Conducting awareness campaign to inform public and contractors about the benefits of considering the specifications of smart construction in buildings and promoting to the technical and financial benefits of using recycled C&D waste materials;
- Training the workers in the field of construction the principles of C&D waste management and processing;



- Establish a dialogue with universities, so that C&D waste management should be educated academically to develop new generation of engineers and workers who are fully committed and well equipped in this crucial field;

3. FINANCES/ECONOMIC & PRIVATE SECTOR

- Permissions and Policies should offer the business environment to encourage the private sector and economists to go on;
- Necessity of making “Feasibility Study” to study the quantity of C&D waste in the market and value of each item to invest without worries;
- Importance of having compromising study which calculate the quantity of C&D waste C&D waste in the market and their cost and price as well as the price of the recycled material to virgin material;
- Building trust and developing mutual partnership between the private sector, government and other stakeholders through establishing specific steering committee to facilitate, supervise and eliminate the obstacles of C&D waste Management;
- Need to ensure that environmental regulations are economically feasible.



9 ANNEXES

9.1 AGENDA

9.1.1 DAY 1: 25 SEPTEMBER 2017

09:00 – 10:30	Welcome & introduction to study visit <ul style="list-style-type: none"> - Anis Ismail (SWIM-H2020 SM Key Expert): The SWIM-H2020 SM project - Françoise Bonnet & Lisa Labriga (ACR+): Introduction to study visit - Essam Nada (RAED): Introduction to the last day 	<u>Park Inn By Radisson Leuven</u>
	Roundtable: Presentation of participants	
	Integrated approach to sustainable management of CDW at local level Françoise Bonnet (ACR+): EU legislation & standards	
10:30 – 17:00	Site visits in Belgium <i>Group will split in two for the visits and will have a lunch break.</i> <ul style="list-style-type: none"> - De Meuter Recycling: sorting of mixed waste from demolition (first sorting steps) - ABR (De Meuter): recycling of the inert demolition waste - Tienen facility SUEZ : sorting C&D waste into several pure fractions going to material recycling 	<u>Neder-Over-Heembeek Grimbergen</u> <u>Tienen</u>

9.1.2 DAY 2: 26 SEPTEMBER 2017

Co-organised together with Brussels Environment



09:00 – 10:30	Training Comprehensive introduction of construction & demolition waste management system as applied in Belgium: <ul style="list-style-type: none">- Nicolas Scherrier (IBGE): CDW policy & management in Brussels- Philippe Van de Velde (OVAM): CDW policy & management in Flanders Discussion & Questions	<u>Brussels Environment</u> (Brussels)
Coffee break		
11:00 – 13:00	Best Practices from Brussels: <ul style="list-style-type: none">- Caroline Henrotay (IBGE): The BAMB project- Anne-Laure Maerckx (Cenergie): Presentation of an example of a building in the Chantiers circulaires call for projects- Ambroise Romnée (BBRI): Presentation of results from CSTC/CCBs study Discussion & Questions	<u>Brussels Environment</u> (Brussels)
Lunch at <u>Brussels Environment</u> (Brussels)		
14:30 – 17:00	<ul style="list-style-type: none">- Anne-Laure Maerckx (Cenergie): Visit of the 'Belgacom project'- Olivier Mahieu (BPC): Visit of the <u>Tivoli project</u>, an example from the (CSTC/BBRI/IBGE) study	<u>Tivoli project</u>



9.1.3 DAY 3: 27 SEPTEMBER 2017

09:30 – 10:30	<ul style="list-style-type: none"> - Think out of the box: De Boer, The Netherlands - Focus on one material stream: reuse and recycling of flat glass used in construction (Christian Deltenre, Minerale/SUEZ) <p><i>Questions & Discussion</i></p>	<u>Park Inn By</u> <u>Radisson</u> <u>Leuven</u>
10:30 – 11:30	<p>Participant's feed-back and brainstorming: Lessons learnt & recommendations from the Study Tour (Legal, Technical, PSP and FCR aspects)</p> <p><i>Moderated by Anis Ismail (SWIM-H2020 SM), Essam Nada (Raed), Françoise Bonnet (ACR+), and Lisa Labriga (ACR+)</i></p>	
	<i>Coffee break</i>	
12:00 – 13:00	Case study presentations from participants	
13:00 – 14:00	<p>Introduction to peer-to-peer process</p> <ul style="list-style-type: none"> - Presentation of the methodology and the process - Identify priority topics (1-2 topics) under C&DW theme - Suggesting expected outputs - Discussing the procedure, communication, milestones and schedule <p><i>Moderated by Anis Ismail (SWIM-H2020 SM), Essam Nada (Raed), Françoise Bonnet (ACR+), and Lisa Labriga (ACR+)</i></p>	
	<i>Lunch</i>	
14:00 – 15:30	Bilateral meetings on peer-to-peer process (optional)	



9.2 List of participants

TIT LE	FIRST NAME	LAST NAME	POSITION/ FUNCTION	ORGANISATION/ INSTITUTION
Ms.	Nassima	LOUHA	Chargée d'études auprès du Secrétariat Général du Ministère de l'Environnement et des Energies Renouvelables	Ministère de l'Environnement et des Energies Renouvelables (MEER)
Ms.	Amal	MAKHLOUFI	Directrice de l'Environnement de la Wilaya de Mascara	Ministère de l'Environnement et des Energies Renouvelables (MEER)
Ms.	Souhila	LADJREM	Directrice de l'établissement de gestion des centres d'enfouissement technique de la Wilaya d'Alger (EPIC_GECETAL)	EPIC_GECETAL de la Wilaya d'Alger
Ms.	Doaa	RASLAN	Waste Researcher	Solid waste management regulatory Agency WMRA-Ministry of Environment
Mr.	Hossamel din	MOSTAFA	Environmental Waste Researcher	Waste Management Regulatory Agency -Ministry of Environment
Ms.	Heba	MAHMOUD ZAKY	Environmental Researcher	Egyptian Environmental Affairs Agency
Mrs .	Neta	HENIK SHILO	Solid Waste Treatment Senior Coordinator	Ministry of Environmental Protection, Central Region
Mrs .	Tamar Navah	RAVIV	Head of Recycling Unit	Ministry of Environmental Protection
Mr.	Uri	TAL	Construction and Demolition Waste Coordinator	Ministry of Environmental Protection
Mrs .	Ronit	OVADIA	General Director	Beit Hakerem Authorities Cluster Ltd
Mrs .	Osnat	AVITAL	Environmental Coordinator	Manufacturers Association of Israel (MAI)
Mr.	Mohammed	ALRYALAT	Director of Environment Protection for Balqa Governorate	Ministry of Environment
Mr.	Ayman	ALZENATI	Head of Environmental Inspection Section	Royal Department for Environmental Protection
Mr.	Anas	SALEH	General Manager	Wae'l mohammed saleh (Building Worx)
Mr.	Ali	MROWEH	Environmental Specialist	Ministry of Environment
Mr.	Julien	ZGHEIB	Lawyer – Vice President of Byblos Municipality	Byblos Municipality
Mr.	Aman Allah	ZAHNOUN	Cadre à la Division des Filières de Valorisation des Déchets	Secrétariat d'État Chargé du Développement Durable (SEDD)



Ms.	Amal	MELLOUK	Ingénieure Cadre à la Division des Filières de Valorisation des Déchets	Secrétariat d'État Chargé du Développement Durable (SEDD)
Mr.	Sami	KHAROUF	Director of Planning of Housing Department	Ministry of Public Work and Housing
Ms.	Dalia	ALASMAR	Environmental Engineer	Environment Quality Authority
Ms.	Nisreen	TARHI	Water and Wastewater Engineer	Ministry of Local Government
Ms.	Linda	A.S. ALKHATIB	Architectural Engineer at Training and Employment Department	Palestinian Engineers Association
Mr.	Chokri	NESSIB	Chargé de mission au cabinet du ministre	Ministère des Affaires Locales et de l'Environnement
Mr.	Maher	BEN SAID	Chargé de la coopération Internationale	Fédération Nationale des villes Tunisiennes
Mr.	Hichem	AKERMI	Direction comptable et financière de l'UTICA	Union Tunisienne de l'industrie, du Commerce et de l'Artisanat (UTICA)
Mr.	Christian	DELTENRE		Minerale/SUEZ
Mr.	Ambroise	ROMNEE		BBRI
Ms.	Anne-Laure	MAERCKX		Cenergie
Ms.	Caroline	HENROTAY		IBGE
Mr.	Philippe	VAN DE VELDE		OVAM
Mr.	Nicolas	SCHERRIER		IBGE
Ms.	Françoise	BONNET	Secretary General	ACR+
Ms.	Lisa	LABRIGA	Project Manager	ACR+
Ms.	Fiona	CRADDOCK	Project Officer	ACR+
Mr.	Anis	ISMAIL	Environment Expert	SWIM-H2020 SM
Mr.	Essam	NADA	Solid Waste Expert	SWIM-H2020 SM
Ms.	Danai	AMPLIANITI	Event Coordinator	SWIM-H2020 SM



9.3 EVALUATION OF THE EVENT

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

A set of 10 criteria; A1-A10 (See table below) was 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:

TABLE 1 - THE RESULT OF THE EVALUATION OF TRAINEE'S ACCORDING TO ORGANISATIONAL,

	A. ORGANISATIONAL, ADMINISTRATIVE AND PLANNING ISSUES BEFORE AND DURING THE EVENT	EXCELLENT	GOOD	AVERAGE	POOR	Total Replies	Average Score (max = 4)
A1	Appropriate handling of invitations, visa support, information sharing and smoothing obstacles	13	8	0	0	21	3.62
A2	Efficient logistics: accommodation, transportation, location of venue and interpretation	8	5	5	1	19	3.05
A3	Provision of support (if requested) for participants' preparation for the event	6	10	2	1	19	3.11
A4	Efficient and effective follow-up of preparations and progress towards the event	6	11	4	0	21	3.10
	A. ORGANISATIONAL, ADMINISTRATIVE AND PLANNING ISSUES BEFORE AND DURING THE EVENT	EXCELLENT	GOOD	AVERAGE	POOR	Total Replies	Average Score (max = 4)
A5	Planning for the event: selection and design of methodology, programme/daily agenda and work rules	4	12	4	0	20	3.00
A6	Smooth flow of programme, efficient handling of emerging needs and attentiveness to participants concerns	6	12	2	1	21	3.10
A7	Presentations correspond and contribute to the planned objectives and are conducive to enhanced shared understanding and participation on addressed topics	8	8	5	0	21	3.14
A8	Clarity, coverage and sufficiency of concepts, objectives, anticipated outputs and outcomes	3	12	5	0	20	2.90
A9	The materials distributed were helpful	5	7	5	1	18	2.89
A10	Efficient and Effective Facilitation	4	12	2	2	20	2.90
A11	Overall rating of the event	6	10	5	0	21	3.05



The following graphs illustrate the table above:

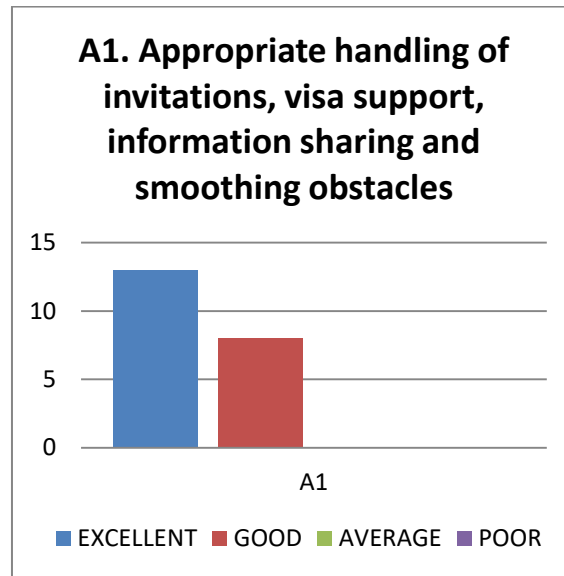


FIGURE 1- INVITATIONS AND SUPPORT

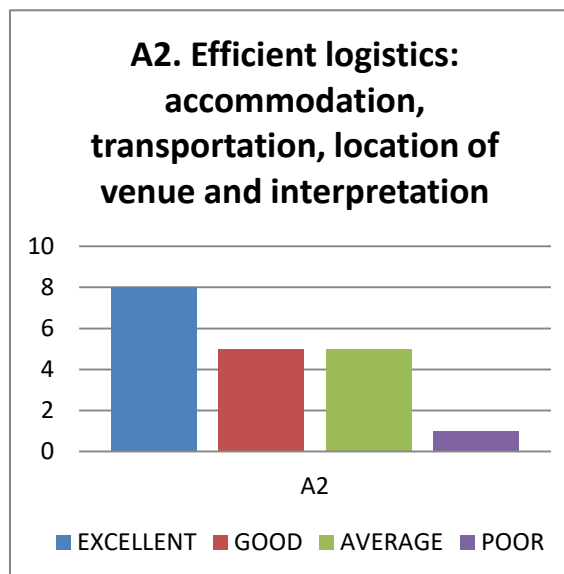


FIGURE 2 - LOGISTICS

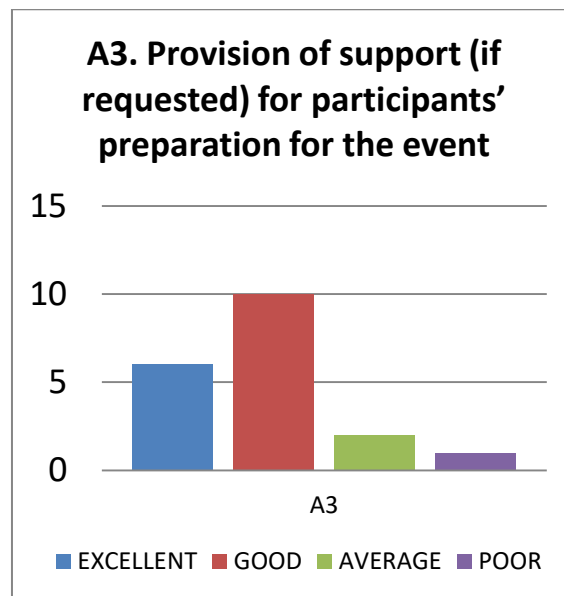


FIGURE 3 – PARTICIPANTS' PREPARATION

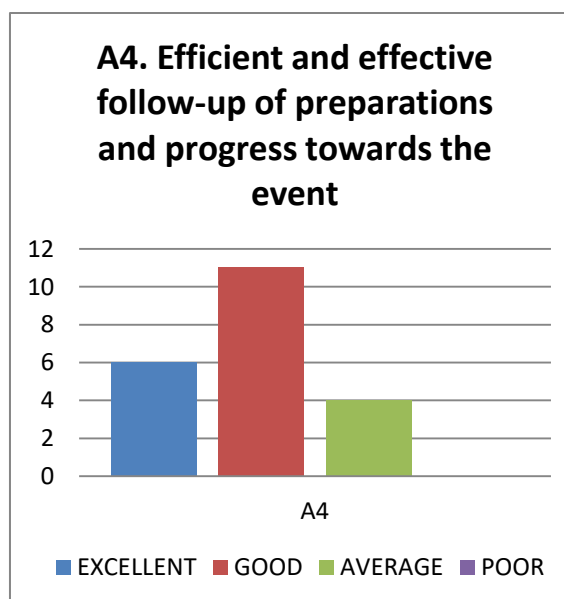


FIGURE 4 – PROGRESS TOWARDS THE EVENT



FIGURE 5 - PLANNING

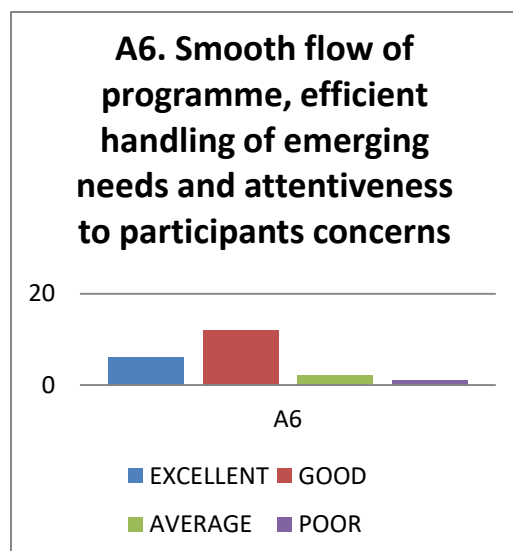


FIGURE 6- FLOW OF PROGRAMME

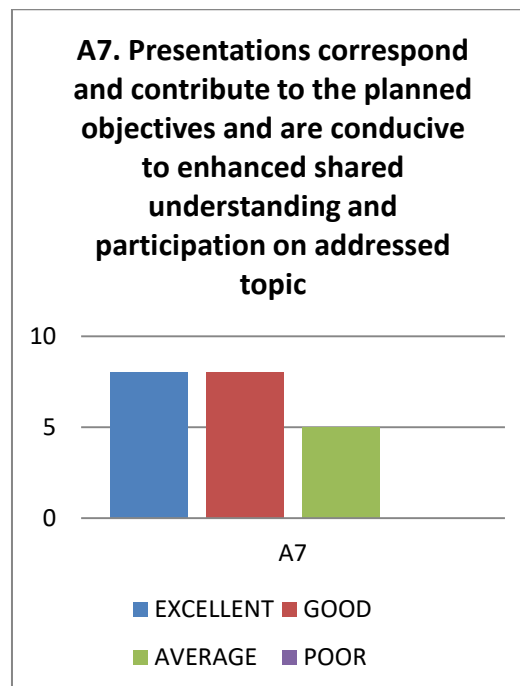


FIGURE 7 – PRESENTATIONS AND ENHANCED SHARED UNDERSTANDING

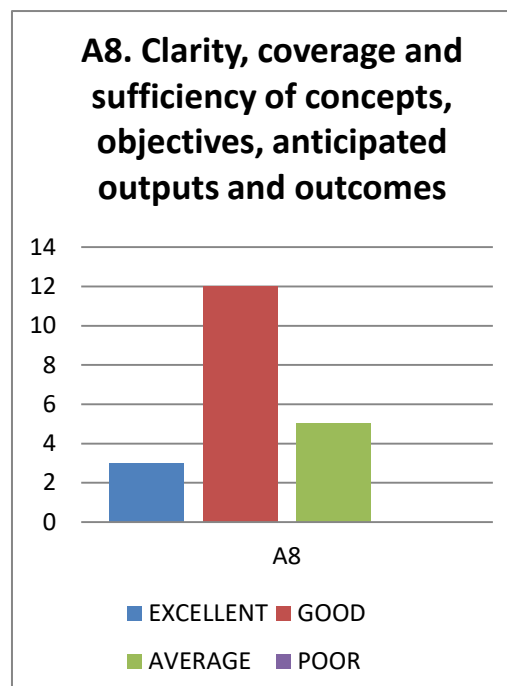


FIGURE 8 – CLARITY AND SUFFICIENCY OF CONCEPTS

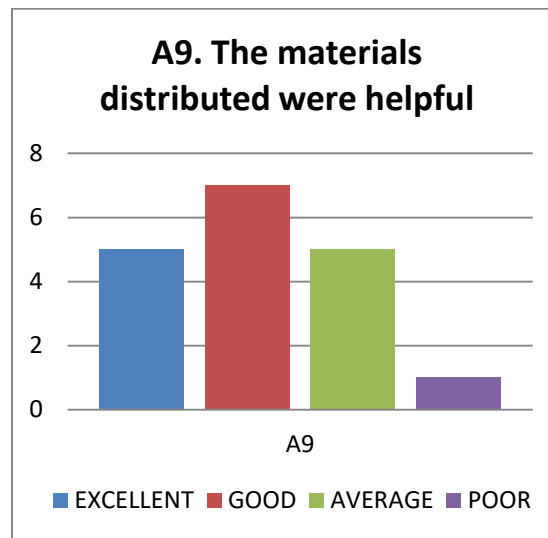


FIGURE 9 – QUALITY OF MATERIALS

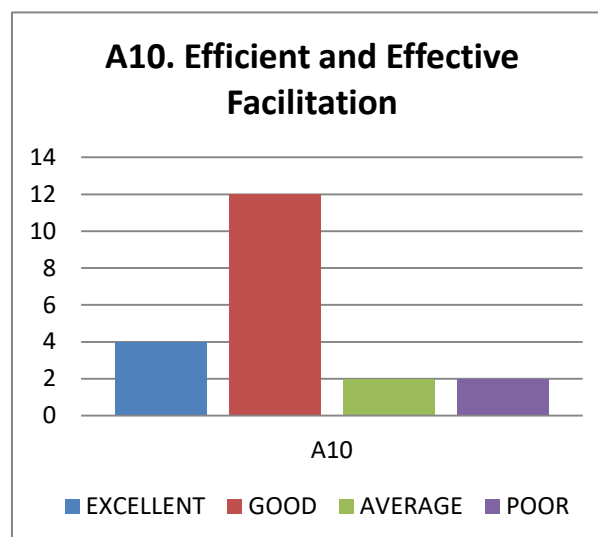


FIGURE 10 - FACILITATION

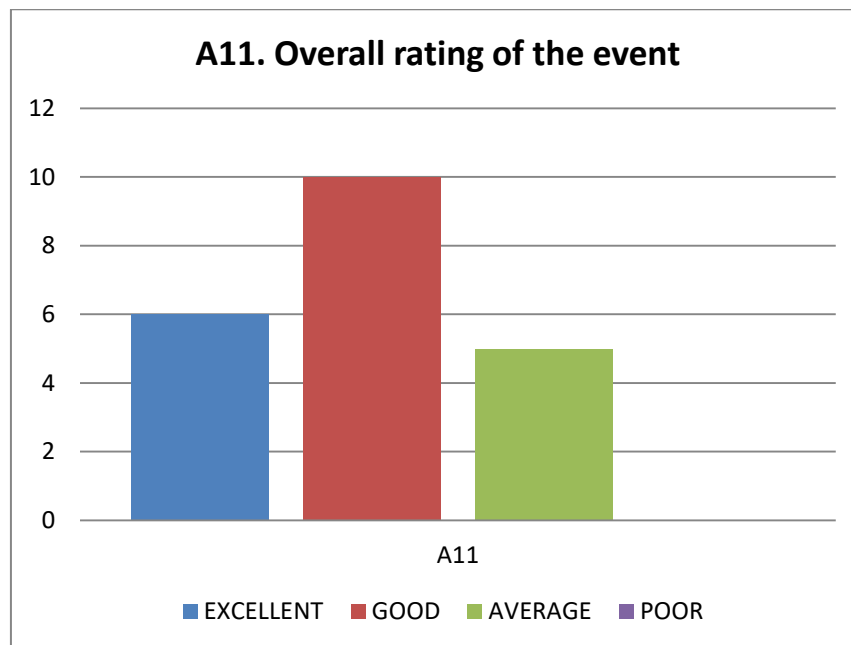


FIGURE 11- OVERALL RATING



B. Feedback by participants:

TABLE 2 - FEEDBACK BY PARTICIPANTS

B. FEEDBACK ON TECHNICAL ASPECTS		No. of replies
B1	Coverage of the event In your opinion did the event cover (tick one of the following):	
	All the topics necessary for a good comprehension of the subject nothing more	9
	Some topics covered are not necessary	5
	Some additional topics should be included	9
	No reply	
	Total Replies	23
B2	Level of difficulty	
	Difficult	1
	Adequate	15
	Elementary	5
	No reply	
	Total Replies	21
B3	Length of the training In your view the workshop duration (tick one of the following):	
	Longer than needed	1
	Sufficient	14
	Shorter than required	6
	No reply	
	Total Replies	21
B4	What is the most valuable thing you learned during the workshop (knowledge or skills)?	
	Total Replies	16
B5	How do you think that the current event will assist you in your future work on the subject?	
	Total Replies	19
B6	Please indicate whether (and how) you could transfer part of the experience gained from the event to your colleagues in your country?	
	Total Replies	19
B7	What did you like most about this event?	
	Total Replies	18
B8	What needs to be improved?	
	Total Replies	16

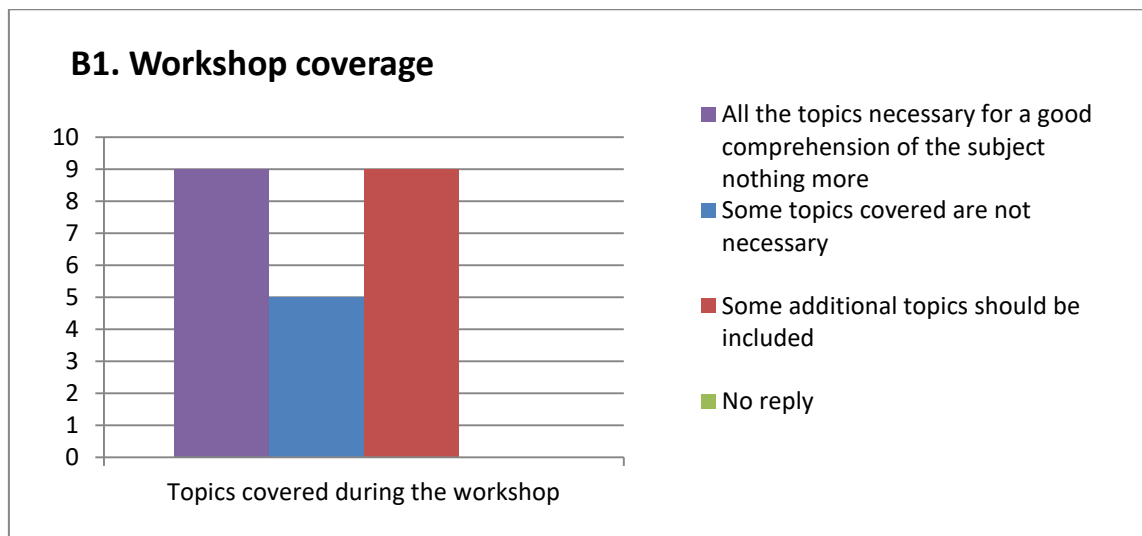


FIGURE 12 - WORKSHOP COVERAGE

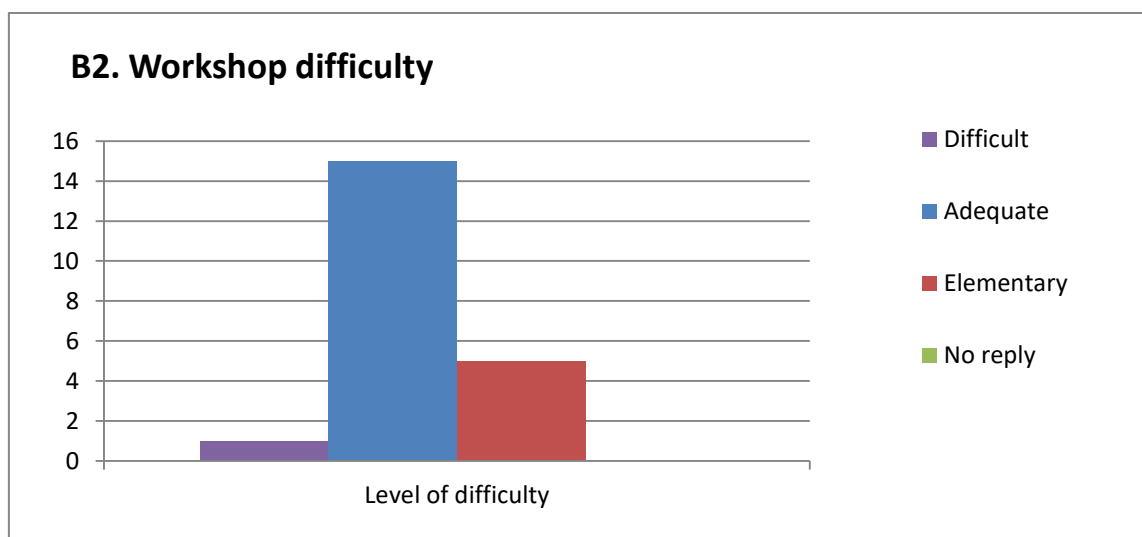


FIGURE 13 - WORKSHOP DIFFICULTY

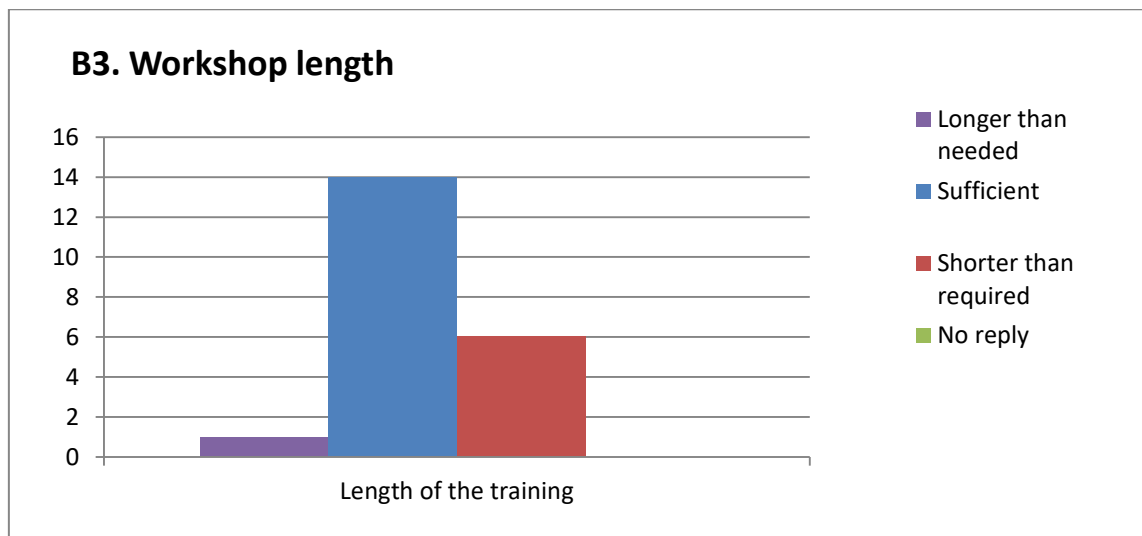


FIGURE 14 - WORKSHOP LENGTH

What is the most valuable thing you learned today (knowledge or skills)?

- I understand that we are not very different from Belgium in a lot of aspects. Saying that I learned other perspectives on how to look on the way C&D waste is handled.
- To develop a sector responsible in evaluating the demolition sector and develop strict observation laws.
- The importance of having an environmental agency for implementation and enforcement of waste policy/legislation.
- The emphasis in Belgium on reuse.
- Taking into consideration the market need and the economic point of view.
- How to treat wastes of construction and demolition.
- Clarify the difference between recycling and reuse.
- The stakeholder platform, circular economy in the construction sector, the material passport and the policy instruments.
- How will the circular economy will be developed instead of the linear.
- Analysing the product cycle.
- Protecting resources by using the recycled materials.
- Public and private sector people are responsible for maintaining a clean environment.
- Practical on the group experience as well as institutional framework and future prospects.
- How to sort demolition materials.
- Strategies for CDW recycle or reuse.
- How to separate the mixed C&D wastes.



- Site visits.
- Sharing experiences with other countries.

How do you think that the current event will assist you in your future work on the subject? (*Open-ended question*)

- The main thing is sorting the waste before transfer like it is happening with other kinds of waste in Israel. Also revising the waste in Israel there is only recycling.
- To evaluate the future of construction and demolition waste to put future vision to reduce it.
- Promoting better C&D recycling facilities.
- Understanding environmental legislation regarding waste.
- Understanding the potential of C&D recycling.
- Understanding more sophisticated practices of design.
- Promoting the establishment of environmental agencies.
- Trying to implement projects as the ones we saw in Belgium.
- The example of the glass recycling show the importance of optical separation.
- Initiate some laws/initiatives regarding C&D waste.
- The trade-off between high-standards for recycling companies and the vanishing of small companies.
- Those are 2 relevant examples for us (the private sector).
- To put channels for waste recycling using the DCD methodology.
- Tell my colleagues and friend the positive effect of recycling on environment.
- Waste demolition segregate by raw material.
- Came with a new idea that I will do at work.
- By addressing the main elements to build a suitable C&D management system (Legal framework, economic instruments, policy instruments, Technical standards and stakeholder engagement).
- By Applying all information gained related to solid waste management.
- Update Palestinian green building code.
- Public awareness of CDW recycling advantages.
- As an architect I am concerned about building rehabilitation in more details and how to deal with materials.
- To implement what we have learned about DCD in our country.

Please indicate whether (and how) you could transfer part of the experience gained from the event to your colleagues in your country. (*Open-ended question*)

- We have a monthly meeting with all my colleagues from all parts of Israel. I will let them know all what I learned.
- By making some lectures and workshops.
- Yes, report will be prepared for MoEP management.



- Ideas will be prepared for MoEP districts and presented.
- Through meetings and a report.
- How to separate and invest in wastes.
- Transfer my experience and providing new job opportunities in Jordan.
- Presentation and group working.
- An overview of the main points discussed in the event.
- Discussing with colleagues.
- Public workshops.
- Meeting with the main stakeholders.
- We will report to our organization to improve the guidelines and laws of C&D waste.

What did you like most about this event?

- The studies will take us forward. We should do more studies in Isreal.
- The site visit.
- Philippe Van Der Velde lecture on policy & Management.
- Examples by Ambroise Romree.
- The meeting in Brussels environments was very inspiring.
- The team.
- All very nice specially collection and selling of wastes.
- Policy instruments participant interaction.
- Organization, exchange and presentation quality.
- Private sector involvement.
- Most of the printed paper and materials used were recycled.
- The hotel is environmentally friendly.
- The management development of CDW in Belgium.
- Rehabilitation of buildings and recycle the waste products.

What needs to be improved?

- The facilities we visited were not new for us. I would like to see improved technology.
- Ice breaker activity.
- More lectures.
- More site visits.
- The legal background – the main article of the directive, the local regulations in different countries in Europe.
- Need to work in groups on the first day.
- There are some countries in bad situations we should give them tools on how to begin.
- The visits should be organized better.



- Translate to Arabic.
- Better coordination for site visits.
- Condensed agenda.
- More information about each subject.
- Strengthening the capacities for the future on organization of environmental taxes.
- Additional technical information.
- Suggestions on how to implement knowledge in different areas.
- Advanced lectures on detailed strategies.
- Visit other projects to implement the uses of CDW.
- To see real projects on field.