



WaSec - Neighborhood Network (WS-NN)

By George N. Zaimes and Valasia Iakovoglou (IHU)

The goal of the Network is to strengthen and expand cooperation between existing institutions in regard to sustainable water management in the Eastern Mediterranean with an emphasis on Jordan and Palestine. This will allow the communication among authorities managing water resources and authorities responsible water protection and conservation in order to exchange expertise, best management practices and innovation in technical and scientific methodologies. The exchange of experience and best management practices will improve the sustainable management of water resources and promote economic and social development and enhance water security. This will also provide support for the monitoring, protection and conservation of water resources and potentially provide a regional framework for its monitoring and protection. The network should also provide visible assistance. This will be done by trying to establish new collaborations but also by collaborating with existing environmental and water initiatives.

The specific goals are:

1. **Establish a Sharing Network among peers of the Eastern Mediterranean region** that will:
 - a. Promote true collaboration among the water institutions of the Eastern Mediterranean region.
 - b. Develop more efficient and effective management plans for water resources.
 - c. Lead to better, cheaper water management solutions and plans.
 - d. Increase Jordan's and Palestine's but also the other Eastern Mediterranean region's countries and communities' resilience to water scarcity.
 - e. Enhanced the protection of the water resources of the region.
 - f. Support peer learning – improving their knowledge on sustainable water management.
 - g. Create tools and resources on water management for the region.
 - h. Facilitate formal and informal communications between water institutions
 - i. Allow countries to assist each other in the planning of management plans for sustainable water management.
 - j. Allow countries to assist each other in regard to the management of transboundary basins and watersheds.
- 2: **Create mechanisms for informing the general public** to:
 - a. Enhance the general public knowledge on sustainable water management and its importance.
 - b. Enhance the general public knowledge new innovative best practice on how to conserve water resources and promote sustainability.
 - c. Develop written (brochures) and online material (website) for the general public.
 - d. Host events (e.g., workshops, awareness events) to inform the general public.

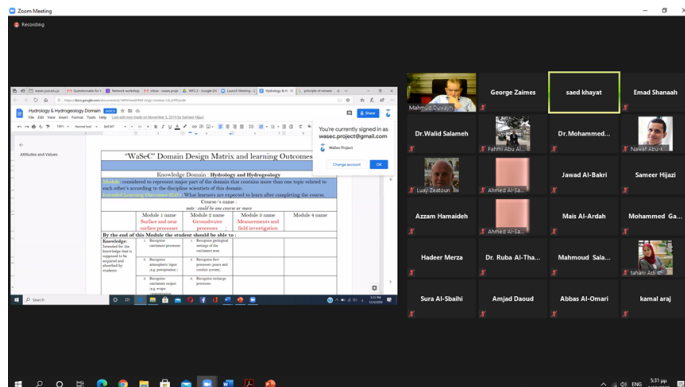


Fig. 1. The WS-NN has high participation of stakeholders

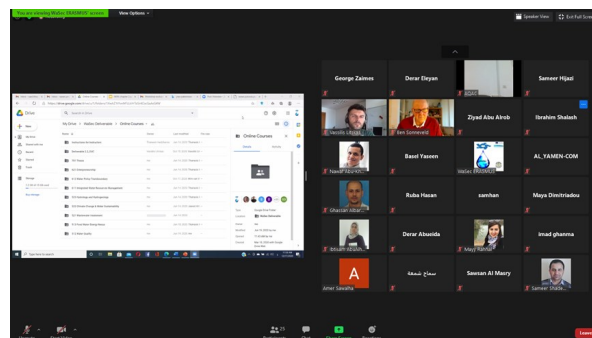
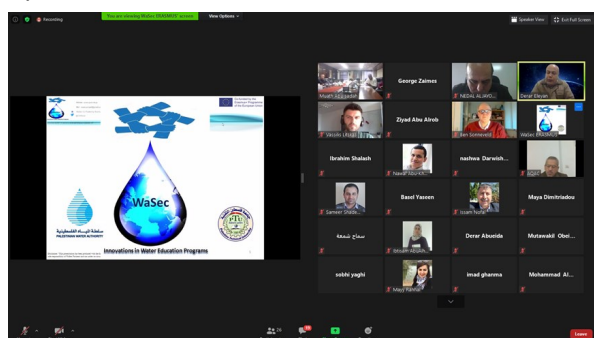


Fig. 2. Participants of the WS-NN



Palestinian Wasec Network Meetings

By Subhi Samhan (PWA)

The Palestinian Water Authority, Palestine Technical University, Al-Quds University and HydroPal Company, organized two “WaSec online networking workshop.” These were conducted online via **ZOOM** on **December, 17th 2020** from **10:00 AM – 12:00 AM** Jerusalem Time and **June, 29th 2021** from **4:00 PM – 6:00 PM**.

This online networking workshop are considered a strategic event to gather the interested stakeholders and the partners of WaSec project to introduce the project objectives, developed courses, current progress and expected impacts of the project.

WaSec project aims to teach new technologies and methods to students that will incorporate them in water resources management plans and that eventually will be adopted in the water relevant organizations and businesses. Another major concern are the many different services that water can offer.

December 2020 Meeting

Details of WaSec Project Online Networking Workshop

Time	Topic	Facilitator
10:00 - 10:15	Welcoming	Eng. Hazem Kittani, PWA
10:15 - 10:30	WaSec Project in Brief	Dr. Nidal Jayyousi, NLO-Erasmus office, Palestine
10:30 - 11:00	WaSec Project Platform	Dr. Muammer Ibrahim, AQAC
11:00 - 11:45	Discussion with stakeholders	Dr. Dinar Eyyan, PTUK (Grant holder)
11:45 - 12:00	Closing	Prof. Saad Khayat, PTUK

Registration
Please confirm your attendance if it will be in person or with zoom by sending email to Dr. Subhi Samhan (subhisamhan@yahoo.com)
Zoom Link for attendance with zoom
<https://zoom.us/j/92780627784>
Day: Thursday
Date: 17.12.2020
Time: 10:00 am – 12:00 am (Jerusalem Time)

Logos of participating institutions: PWA, PTUK, AQAC, NLO-Erasmus, PTUK, VU, IHEC, etc.

Fig. 3. The meeting agenda, December 2020

In the December meeting there were more than 30 participants from different water sectors from Palestine. The meeting was also attended by Dr. Nidal Jayyousi of the NLO-Erasmus office Palestine. Representative of all WaSec partner participated or presented. Following are the agenda and some print screens of the meeting.

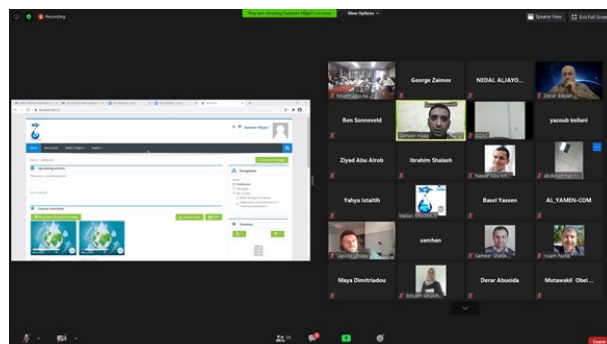


Fig. 4. The Palestinian participants, December 2020

June 2021 Meeting

In the June meeting approximately, there were 30 participants, from different water sectors from Palestine. In addition, representative of all WaSec partner participated or prese. Following are some print screens of the meeting.

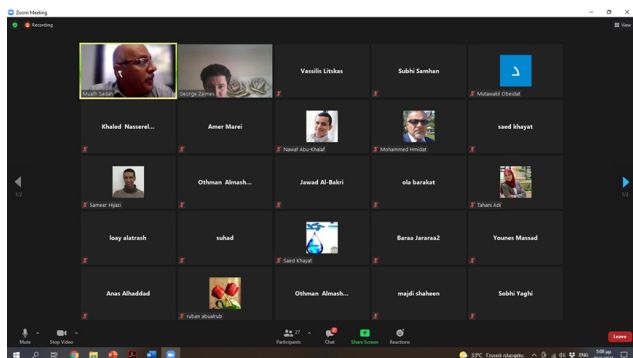


Fig. 5. The Palestinian participants, June 2021

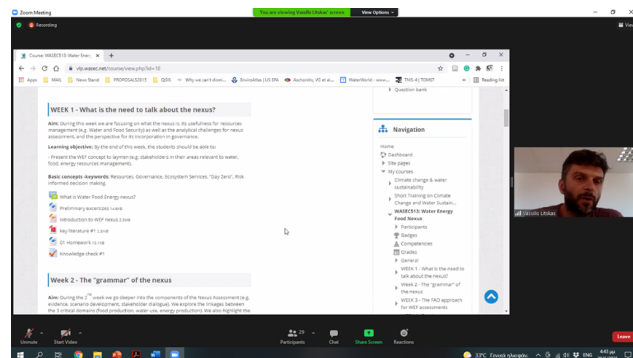


Fig. 6. Dr. Vasilis Litskas presentation

WaSec online networking workshop

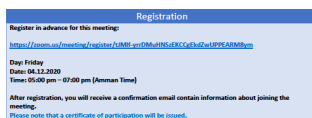
Event 1, December 4, 2020

By Ahmed Al-Salaymeh, Tahani Almalki (UJ)



Details of WaSec Project Online Networking Workshop

Agenda		
Time	Topic	Facilitator
5:00 - 5:15	Welcoming	Prof. Ahmed Al-Salaymeh, IUST Prof. Fahmi Abu Alluh, JUPT
5:15 - 5:30	WaSec Project in Brief	Prof. Walid Salamah, PSUT Prof. Saad Khayyat, PIUK A.
5:30 - 6:00	WaSec Project Platform	Dr. George Zaimes, AGU/MaTech Prof. Amer Maresi, AGU
	WaSec developed courses	Dr. Sameer Hujazi, AGU
6:00 - 6:45	Discussion with stakeholders	Moderator: Dr. Penelope Shihab, ASU



Medline Plus Number: 001495-000-1-2018-1-05-000033-0000-00

Fig. 7. The meeting agenda, December 2020

Event 2, April 2, 2021



Details of WaSec Project Online Networking Workshop

Agenda		
Time	Topic	Presenters
8:00 - 8:15	Welcoming	Prof. Ahmed Al Salameh, UST Prof. Fehmi Abu AlRas, UST Prof. Waleed Salem, PSU
8:15 - 8:40	Developed countries and VLP in brief, what is new in water resources and management	Dr Theodoros and Vasilis, Open University of Cyprus
8:40 - 9:05	Demonstration for Food Water Energy Nexus Course	Dr Vasilis Litsas, Open University of Cyprus
9:05 - 9:30	Demonstration for Hydraulics and Hydrological Course	Prof. Amer Mawad, Al-Quds University
9:30 - 10:00	Demonstration for Integrated water resources management Course	Prof. George Zanis, International Hellenic University
10:00 - 10:15	Demonstration for Wastewater technology Course	Prof. Omer Almahjneh, Princess Sumaya University for Technology
10:15 - 10:30	Demonstration for Water policy and governance in transboundary basins	Prof. Sami Alkhatib, University of Amsterdam
10:30 - 10:45	Demonstration for Water quality Course	Prof. Mutasem Chastat, UST
10:45 - 11:00	Demonstration for climate change and water resources	Prof. Jazal Al Rakeh, The University of Jordan
11:00 - 1:00		Midday break



100% of the respondents were female, and 100% were white.

Fig. 8. The meeting agenda, April 2021

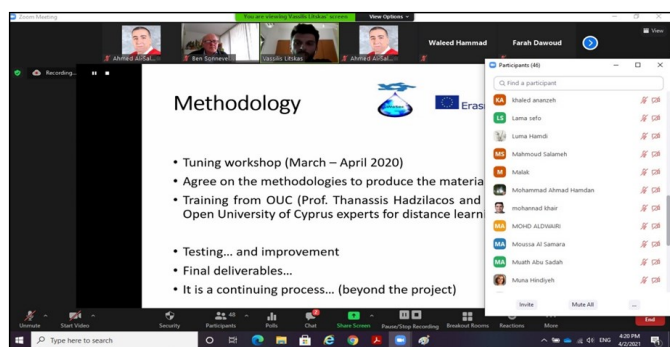


Fig. 9. The methodology of the online courses was presented



Fig. 10. The Water and Wastewater Treatment Course

Showcased WaSec Course

Water Food Energy nexus

by Vassilis Litskas (OUC)

The water-food-energy nexus is central to sustainable development. Demand for all three is increasing, driven by a rising global population, rapid urbanization, changing diets and economic growth. Agriculture is the largest consumer of the world's freshwater resources, and more than one-quarter of the energy used globally is expended on food production and supply. The inextricable linkages between these critical domains require a suitably integrated approach to ensuring water and food security, and sustainable agriculture and energy production worldwide.



Fig. 11. The water-food-energy nexus

Aim of the Course. The course 'Water Food Energy nexus' targets to introduce the students to the fundamental concepts of the nexus approach and present an analysis for food production and distribution, water, and energy management, focusing on arid and semi-arid areas. The course will contribute to decision making towards sustainable spatial planning (and land use related conflicts mitigation) by highlighting the tradeoffs among energy, water, and land use. The course will also present an ecosystem services "point of view" in sustainable resources management.



Fig. 12. The FAO WEF approach

The FAO WEF approach. The course starts with the fundamental knowledge of the WEF. What the nexus is, its usefulness for resources management (e.g. Water and Food Security) as well as the analytical challenges for a nexus assessment, and the perspective for its incorporation in governance. It goes deeper into the components of the Nexus Assessment (e.g. evidence, scenario development, stakeholder dialogue). The students explore the linkages between the 3 critical domains (food production, water use, energy production). Indicators are presented to quantify impacts for possible interventions (e.g., build a dam for electricity production and reduce water availability for agriculture). Assessment and comparison of interventions are presented, as proposed by FAO.

Food as an ecosystem service. Ecosystem Services offered by agroecosystems and potential indicators that could be employed for quantifying provisioning, regulating, and cultural services related to agroecosystems are also topics for the course. The Cypriot agricultural sector is used as a case study to present these concepts in practice. The students will conduct parts of an ES assessment in their area of interest. For the assessment, a multi-indicator approach will be used taking into account environmental, food security and social aspects.



Fig. 13. Food as ecosystem service

Modelling. Ecological niche modelling will be employed to evaluate the impact of climate change on food security. In addition, the students will use the Cool Farm Tool, which is designed to allow farmers and professionals to esti-



mate and report their products environmental footprints, to estimate the footprint of different agricultural products/management systems. The main indicators of the EF will be the Carbon Footprint, Water Footprint and Energy Intensity. The students will be asked to propose changes in farming practices that will lead to EF reduction.

Water. The students will work on the estimation of crop water requirements. They will familiarize themselves with the factors that determine water consumption for food production. This is important as in many areas of the world, agriculture takes the biggest share in water resources consumption. Therefore, the basic tools for irrigation water management are given (e.g. evapotranspiration, soil water balance). The use of the ES concept for Water Management on a river basin scale is also provided. Indicators are selected for the ES quantification and mapping is performed, as a tool for water resources management.

Energy. Case studies where wind energy is employed for desalination to produce irrigation water will be used. The MuSIASEM approach for WEF analysis will be also introduced. The energy use in the agricultural sector is examined. Energy flows in food production, processing, and transportation are quantified. Opportunities for energy use mitigation in food production are discussed. Case studies i.e., “energy flows and GHG emissions from bread production in European areas” are used for this purpose. Finally, the students are exploring the energy use in various production sectors (e.g. electricity generation, transportation) and these are linked to GHG emissions and climate change. The IPCC reporting scheme is also presented to have an insight into GHG emissions accounting, due to energy use. Energy production via low CO2 emission methods is presented, as a key for GHG emissions/climate change mitigation (EU and UN policies).



Fig. 14. Example of wind energy

EXPLOITING JOINTLY WASEC COURSES

By Nawaf Abu-Khalaf , Saed K. Khayat (PTUK)

The Palestine Technical University Kadoorie PTUK, the Jordan University for Science and Technology JUST, and the International Hellenic University IHU, have jointly exploited WaSec courses through teaching Water Quality course. Water quality course is part of 9 courses that have been created and developed by WaSec partners.

The teaching process is practiced through the WaSec virtual learning platform that has been also created within WaSec ERASMUS activities, and hosted by Al-Quds University.

The Master students undergone new experience in blended learning, exposed to various expertise from Jordan, Palestine and Greece, where lecturers from those mentioned countries presented their knowledge and skills to the master students.

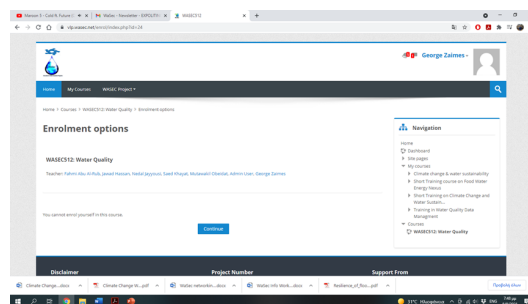


Fig. 15. The Virtual Learning Platform (VLP)

By the end of the course the three Universities agreed to jointly supervised 4 joint Master thesis to exchange and functioning their experiences to solve urgent Water problems either in the middle East or south Europe.



Training in Water Quality Data Management

By Nawaf Abu-Khalaf, Saed K. Khayat (PTUK)

WaSec management team has implemented an online training course entitled: Water Quality Data Management on 24-25 May 2021.

The course has been designed to study of groundwater quality including hydrochemistry data management tools, which involves the storage and management of large volumes of water quality data, and a large number of numerical and graphical techniques that are not readily available with standard Office software such as: MS Excel.

This two-day training course was designed to introduce you to data management fundamentals and basic water quality analysis using AquaChem Software through an intense series of exercises that will facilitate your understanding of the program.

Many subjects were discussed during this two day training course, such as: Scientific Research and Water Quality data and enrolment in Decision Support System (DSS), Scientific Data Life cycle, Health Break, Data collection, plan and design, Introduction to metadata, Water quality Data to Policy Brief, Live Example training and assignment, How to prepare hydrochemistry excel database, Introduction to Aquachem software, Creating a compatible database with Aquachem, Data processing using Aquachem tools, Health Break and Reporting techniques using Aquachem program

Teacher: Saed Khayat, Nawaf Abu-Khalaf, Abdelfattah Hassan, Husam Uter, George Zaimes.

Climate Change and Water Sustainability Training Webinar

By Ahmed Al-Salaymeh, Tahani Almalki (UJ)



Climate Change and Water Sustainability Training Webinar
15/6/2021

Agenda		
Time	Topic	Speaker
5:00 - 5:15	Registration & Welcoming	Prof. Ahmed Al-Salaymeh, UI Prof. Mahmoud Irshidat, UJ
5:15 - 5:45	Climate change interactive course on WaSec VLP. WHAT'S NEW? Course content, structure, intellectual and practical skills, live examples and local case studies.	Prof. Saed Khayat, Palestine Technical University – Kadoorie
5:45 - 6:00	Discussion	
6:00 - 6:30	local case studies for coping the effect of CC on groundwater sustainability, case studies on Aquifer Management	Prof. Amer Marei, Al-Quds University
6:30 - 6:45	Discussion	
6:45 - 7:15	Climate change and water sustainability. Pressure on Water and Ecosystems. New approaches to cope CC in Europe.	Prof. George Zaimes, International Hellenic University
7:15 - 7:30	Discussion	
7:30 - 7:45	Discussion All Lectures	
7:45 - 8:00	Closing	Prof. Ahmed Al-Salaymeh

Registration

Register in advance for this workshop:
https://docs.google.com/forms/d/e/1FAIpQLSc1o1S8Pw074vP0m3K46Y-oh1ckTvvKuf8tNclw_XoaiGQw/viewform?usp=sf_link
 Day: Tuesday
 Date: 15.06.2021



WaSec Project Number: 595480-EPF-1-2018-1-PS-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Under Innovations in Water Education: Enhancing Water Security and Socio-economic Development in the Eastern Mediterranean under Climate Change (WaSec), the University of Jordan conducted Climate Change and Water Sustainability Training Webinar in cooperation with the project general coordinator "Palestine Technical University – Kadoorie" continued for 3 hours and included 3 sessions. The first session was about Climate change interactive course on WaSec VLP, presented by Prof. Saed Khayat.

The workshop was started by a welcoming speech by Prof. Ahmed AL-Salaymeh and giving a short brief about WaSec project. Also, he talked shortly about the possibility of cooperation between WaSec members in supervising the master students at the university of Jordan in cooperation with the specialized professors from WaSec partners. Also, Prof. Irshidat welcomed the participants and showed that he taught the climate change course according to the prepared materials from WaSec project.

Fig. 16. The Training Webinar agenda



Then Dr. Saed Khayat present a brief about WaSec project, major activities and trainings that had been done last semester for the students like Water Quality training course that was organized by JUST. Then, he proceeded by presenting the climate change course content, structure, intellectual and practical skills, live examples and local case studies. In addition, he clarified the approach that used in teaching WaSec courses which is a blended learning approach that allows the students to study from distance, where he can find recorded lectures, assignments and quizzes for the pilot courses. Also, open a chance for outside professors and teachers to participate in teaching approach for different academic levels in various fields, which allow the students to benefit from outside experience to improve their knowledge.

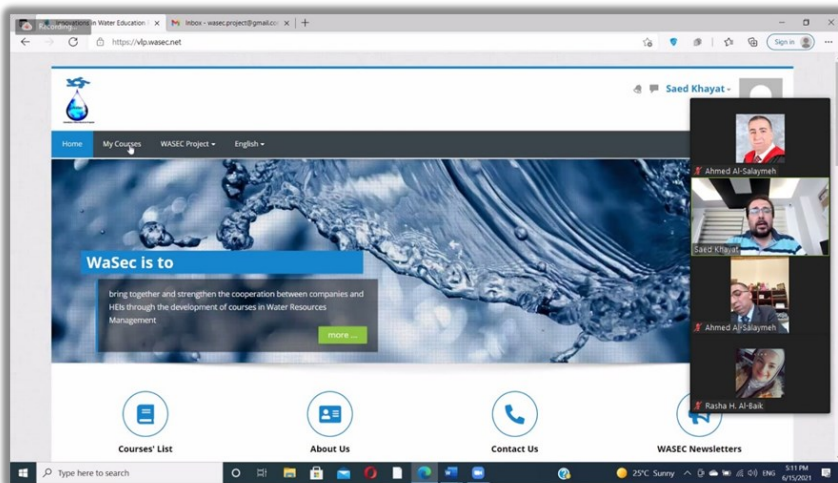


Fig. 17. Prof. Saed Khyat presentation

During the first session, Prof. Khayat demonstrated the climate change course that includes 13 weeks (topics); every week have different modules and topics, covers climate change aspects from many topics.

At the end of the session, there was open discussion regarding the future learning approach that will be demonstrated in educational field which is blended learning that used nowadays in the United States.

The second session was about local case studies for coping the effect of climate change on groundwater sustainability, and case studies on Aquifer Management, presented by Prof. Amer Marei, Al-Quds University, where he introduced a case study on Al-Faria area in Palestine. The presentation started with introducing the challenges that target the agriculture sector, food security, hydrology, water resources management and natural ecosystems as a result of climate change in the Mediterranean area. Then, he introduced the major problem that faces Al-Faria basin regarding climate changes, which is identified as continuous drying out during the last 10 years and how we can rehabilitate Al-Faria spring and minimize the flooding area that happened because of climate change and heavy rain in short time.

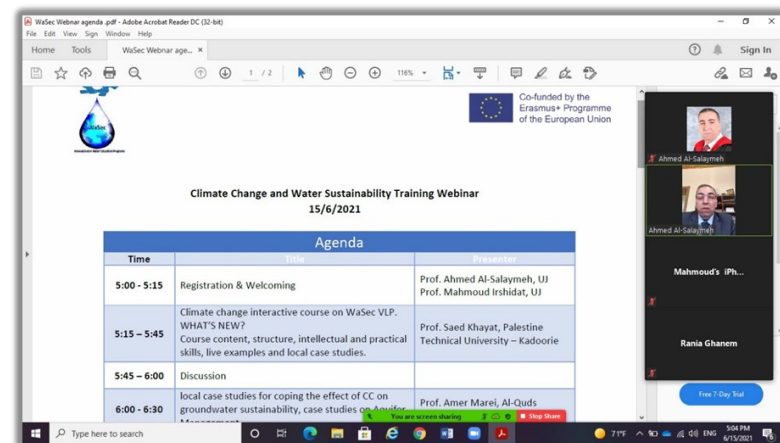


Fig. 18. Prof. Ahmed Al-Salaymeh introductory remarks

Prof. Marei also presented some of the suggested ideas and actions to face the challenges that affect Al-Faria basin and can help to improve the recharge of the ground water basin in general.

At the end of the session, the participants had the chance to ask some questions and discuss the answers in open discussion continued around 15 minutes.



The third session was about climate change and water sustainability, Pressure on Water and Ecosystems, and New approaches to cope CC in Europe, presented by Prof. George Zaimes, International Hellenic University.

Prof. Zaimes started his presentation by introducing some results of studies about the impact of climate change on the Mediterranean area which indicate of increasing the temperature of earth, and how it reflects on the amount of rainfall and water availability in the region and how this increase will affect the hydrological cycle in general. Furthermore, he presented how the climate change will effect on Jordan and what are the key performance indicators for facing the climate change impact and what are the strategies that used to face climate change impact.

In addition, Prof. Zaimes presented some cases studies that can help to decrease the negative impact of the climate change in the Mediterranean areas.

At the end of the session, the participants had the chance to ask and discuss ideas regarding the climate change between past and present and the fact that most studies indicate and show red mark in Mediterranean area all these years. The participants also discussed what is the best solutions to solve flood problems in Mediterranean area such as artificial discharge.

The number of participants exceeded 40 participants from different public, private, academic and non-academic sectors.

Webinar Evaluation:

The training webinar is considered successful. According to the answered questionnaires people came mainly from Universities (International Hellenic University, University of Jordan, Al Quds University, JUST, University of Petra, German Jordanian University, National university college of technology, University of Aleppo, Department of Forestry and Natural Environment Management, Greece) and Public bodies: (Palestinian Water Authority, Jordanian Customs)

The participation of enterprises was very poor.

The average overall satisfaction (weighted average) from the training workshop was 83% (all answers scored above 79%), with a maximum of 88% ("The course outline is clear") and a minimum of 79% ("I can easily interact with the teacher online and offline").

Regarding the VLP, the satisfaction was 82% (overall weighted average), with a maximum of 85% ("The VLP is user friendly" and "The portal interface design is suitable") and a minimum of 79% ("I can easily access the VLP").

Almost all the participants in the survey found the topic very interesting

A few persons noted that the duration of the webinar was long with many details and very few mentioned problems in obtaining the link and with the network. Lack of interaction with the students was also commented as a negative aspect.

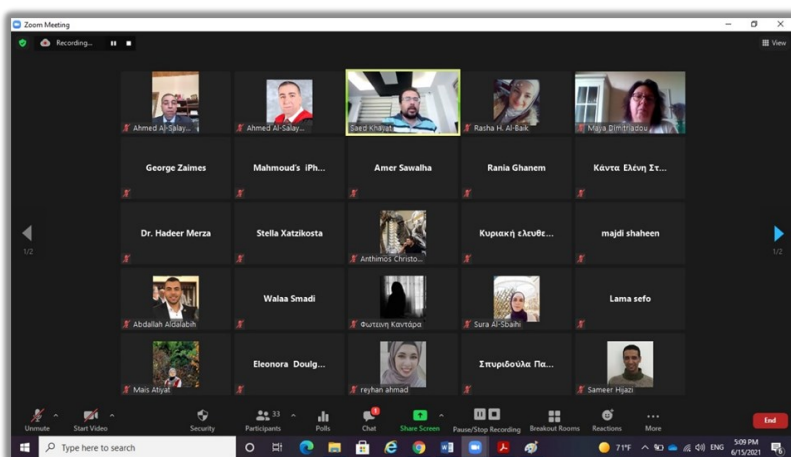


Fig. 19. The webinar participants, June 2021

Cluster meeting for the newly selected projects 2020

By Ahmed Al-Salaymeh, Tahani Almalki (UJ)

A cluster meeting took place on 8th of March 2021 with the representative of newly selected CBHE project 2020, was organized by the National Erasmus+ Office in Jordan. The meeting was conducted at the University of Jordan for 2 days.

Prof. Ahmed project entitled with Eco-CAR was among the selected projects for 2020. WaSec UJ team disseminate WaSec project by presenting WaSec roll-up in the hall during the meeting for Two days with other Erasmus plus projects.

The participants were from academic sectors, private and public .



Fig. 20. Participants from the cluster meeting

Erasmus plus eco-car project workshop

By Ahmed Al-Salaymeh, Tahani Almalki (UJ)



Fig. 21. Prof. Ahmed Al-Salaymeh presentation

The University of Jordan conducted a training workshop on 24th of June 2021 under Erasmus plus project titled eco-car for two days at the University of Jordan - Prince Al Hussein Bin Abdullah II School of International Studies.

During the workshop there was session for dissemination Erasmus plus projects which the University of Jordan represents as a partner in these projects or as a local coordinator or even as a general coordinator of the projects.

In this session Prof. Al-Salaymeh disseminated WaSec project by introduce a presentation about WaSec project, which presented

the main aim of the project and participated partner from Mediterranean countries and European countries and the expected outcomes of this project. Also the project roll up had been presented in the hall of the workshop and during the two days. The participants in this workshop were from different academic institutions.

MediTec Final conference

By Ahmed Al-Salaymeh, Tahani Almalki (UJ)

The final conference of MediTec was held by the University of Jordan Under the Patronage of H.E. Prof. Mohammad Abu Qudais, Minister of Higher Education and Scientific Research on 11-12 August 2021.

The conference was attended by high-ranking officials including the President of the University of Jordan, President of the Princess Sumaya University for Technology, the Director of the National Erasmus+ office, and the vice president for scientific schools and the director on international affairs at UJ. In addition, the deans of different faculties were also present in the conference. More than 100 registered participants attended the conference representing more than 39 entities, including governments, universities, companies, funding agencies, associations, media and non-governmental organizations.

During the final conference WaSec rollup banner was placed in the conference hall for Two days.



Fig. 22. Participants from the Meditec conference



Project Presentations

Dissemination Presentations

George Zaimes, presented the "WaSec" project to the master students of the Analysis and Management of Anthropogenic and Natural Disasters Program, International Hellenic University, GREECE. 29/05/2021.

George Zaimes, presented the "WaSec" project to graduate students of Iowa State University, USA for the course ENSCI 698: Seminar in Environmental Science. 26/04/2021

George Zaimes, presented the "WaSec" project to the master students of the Man & Water Program, International Hellenic University, GREECE. 24/04/2021

International Conferences Presentations

Education as a tool for the sustainable management of the water resources in Jordan and Palestine – the Erasmus project Wasec. Presenter: G.N. Zaimes. Co-authors: S. Khayat, F. Abu Al-Rub, B. Sonneveld, A. Marei, A. Al-Salaymeh, I. Vogiatzakis, J. L. Garcia Rodriguez, W. A. Salameh, V. Iakovoglou, P. Koutalakakis. International Workshop "Sustainable Management of Water resources and Riparian Areas," June 4th 2021 online.

UNESCO Chair Con-E-Ect: Mapping Sustainability for Riparian Areas, Deltas & Humans through the Collaboration of Universities, Stakeholders and Decision Makers. Presenter: G.N. Zaimes. Co-authors: V. Iakovoglou, D. Emmanouloudis. Med 2020 Int. Con. "THE MEDITERRANEAN: Scientific Expertise for Decision Makers - Climate and environmental research to support sustainable development goals," November 16th-18th, 2020 online.

Co-supervision of Master students

JUST, Title: Biological Treatment of the Wastewater from Pulp and Paper Industries Using Anaerobic Digesting

UJ, Title: Assessment of water quality under the Impacts of Climate Change Using Sentinel-2 Satellite Imagery: A Case Study of the King Talal Dam.

Title: Use of remote sensing techniques for assessing the impact of climate change on water-energy-food nexus in Wadi Araba.

Title: Assessing the Hydrologic vulnerability to climate change impact at Amman-Zarqa Basin, Jordan

Social Media

Contact Links

Email: wasec.project@gmail.com

Web.: <http://wasec.just.edu.jo/Pages/default.aspx>



[WaSec Co-Funded by Erasmus+](#)



[WaSec Co-Funded by Erasmus+](#)



[WaSec Project](#)

Issue # 7, December 2021

Editor: George N. Zaimes (IHU
former EMaTtech)

Co Editor: Georgios Gkiatas (IHU)

The purpose of WaSec "is to bring together and strengthen the cooperation between companies and HEIs through the development of courses in Water Resources Management, while taking into consideration potential climate change impacts, with adaptive learning and teaching methods".

"This newsletter has been produced with the financial assistance of the European Union under the ERASMUS plus Programme. The contents of this newsletter are the sole responsibility of WaSec Partners and can under no circumstances be regarded as reflecting the position of the European Union or of the Programme's management structures."

