



PHEMAC –Innovation Week
Mai 22 - 24, 2023
Faculty of Sciences and Technologies
Conference center
Fez, Morocco

Mai 22, 2023

08:30 - 09:00

Registration

09:00 - 11:00

Opening Ceremony and Regional Conference [Link MS teams](#)

Moderator: **Najiba EL AMRANI EL IDRISI**

Professor, Horizon Europe National Contact Point for Cluster 4: Digital, Industry and Space ; Faculty of Science and Technology - USMBA

Speakers

- **Prof. Mustapha IJJAALI** - President of University Sidi Mohamed Ben Abdellah
- **Prof. Taoufiq ACHIBAT**- Vice Dean of the Faculty of Sciences and Technology of Fez
- **Dr. Sanaa ZEBAKH**- Director of cooperation & partnership -Ministry HESRI-Morocco
- **Prof. Ali Rhouma** - Project Officer, Thematic area: Nexus, PRIMA Foundation
- **Dr. Abdellah BOURAK** - Director of the Sebou Hydraulic Watershed
- **Prof. Manuel VALIENTE** – Analytical Chemistry Professor at Universitat Autònoma de Barcelona. PRIMA & NEX_Labs project coordinator ENICBCMED (TBC) PRIMA (TBC)
- **Dr. Mahmoud ZEMZAMI**, Directorate General Hydraulics, Rabat - Morocco
- **Dr. Giulio CASTELLI**, University of Florence, Italy

09:00 - 09:10	Official Welcoming Prof. Mustapha IJJAALI - President of University Sidi Mohamed Ben Abdellah
09:10 - 09:20	Official Welcoming Prof. Taoufiq ACHIBAT - Vice Dean of the Faculty of Sciences and Technology of Fez
09:20 - 09:30	WEF Nexus status in Morocco and the region Dr. Sanaa ZEBAKH - Director of cooperation & partnership -Ministry HESRI-Morocco
09:30 - 09:40	WEF Nexus perspectives from the European Commission point of view Prof. Ali RHOUMA : Project Officer, PRIMA Foundation
09:40 - 09:50	WEF Nexus status in Morocco and the region Prof. Abdellah BOURAK – Director of the Sebou Hydraulic Watershed
09:50 - 10:00	WEF Nexus perspectives from the PHEMAC and NEX-LABS point of view Prof. Manuel VALIENTE, UAB
10:00 - 10:30	Management Water resources management and planning in Morocco: a tradeoff between stationarity paradigms, scenario based projection and decision making Dr. Mahmoud ZEMZAMI , Directorate General of Hydraulics, Rabat - Morocco
10:30 - 11:00	Scientific approaches to water harvesting: practical experiences and latest innovations Dr. Giulio CASTELLI , University of Florence, Italy



11:00 - 11:30

Coffee Break – Poster Session "Water & Environment"

11:30 - 13:30

PHEMAC results and methodology Workshop [Link MS teams](#)

Moderator: **Salma ESSAWI** Deputy director for research and innovation
Academy of Scientific Research and Technology (ASRT), Egypt

Speakers

- **Gustavo Pérez GONZÁLEZ** - Senior Project Manager Universitat Autònoma de Barcelona.
- **Nadim FARAJALLA** Director of the Climate Change and the Environment Program, American University of Beirut
- **Dr. Mohammed ALJAFARI**, Director, Intellectual Property Commercialization Office, iPARK - Royal Scientific Society
- **Prof. Fatima JAITI** - Faculty of Sciences and Technologies- Errachidia – UMI
- **Prof. Aziz BAIDANI** - University HASSAN 1st, Settat, Morocco
- **Dr. Rachid BOUHARROUD**- INRA, Regional Center for Agronomic Research, Agadir,
- **Prof. Mohamed ADERGHAL** - FLSH, Université Mohamed V de Rabat
- **Dr. Zineb BELABESS**, Berkane's Qualipole - Regional Center for Agronomic Research of Oujda

11:30 - 11:45

Presentation of PHEMAC Project

Gustavo Pérez GONZÁLEZ - Senior Project Manager; Universitat Autònoma de Barcelona. PRIMA & NEX_Labs project manager

11:45 - 12:15

Participatory Impact Pathways Analysis (PIPA)

Nadim Farajalla Director of the Climate Change and the Environment Program at the American University of Beirut's Issam Fares Institute for Public Policy and International Affairs

12:15- 12:45

Technology Transfer

Dr. Mohammed Aljafari, Director, Intellectual Property Commercialization Office, iPARK - Royal Scientific Societ

12:45 -13:15

Case Studies in Water, Food & Energy

1. **Prof. Fatima JAITI** : SMACUMED Project
2. **Prof. Aziz BAIDANI**: CEREALMED Project
3. **Dr. Rachid BOUHARROUD**: VegAdapt Project
4. **Prof. Mohamed ADERGHAL**: CamelShield Project
5. **Dr. Zineb Belabess** : GEMED Project

WRAP-UP & Closure

11:30 - 13:30

WEF NEXUS researchers Meeting: "Water & Environment"

Room 1

Chairman : **Lahcen BENAABIDATE**

Room 2

Chairman : **Fouad DIMANE**



13:30 - 14:45

Lunch break + Networking Opportunities between the NEXUS Stakeholders

14:45 - 16:15

WEF NEXUS researchers Meeting: "Agriculture & Energy"

Room 1

Chairman : Naima EL GHACHTOULI

Room 2

Chairman : Kamal ABERKANI

16.15 – 16.30

Coffee Break – Poster Session "Agriculture & Energy"

16:30 - 18:00.

Monitoring and benchmarking of WEF-NEXUS solutions PANEL [Link MS teams](#)

Chairman: Dr. Mohammed ALJAFARI - Director, Intellectual Property Commercialization Office, iPARK - Royal Scientific Society

Speakers:

Dr. Sanaa ZEBAKH- Director of cooperation & partnership -Ministry HESRI-Morocco

Mr. Mondher KHANFIR - Board Member at AMA @ Station F. Co-Founder & VP at Tunisia Africa Business Council. Head of the Think Tank "For a shared prosperity in Africa". Governance Expert to the Council of Europe. Policy Advisor, Innovation Expert and Author.

Prof Laila MANDI - National Center for Studies and Research on Water and Energy. Laboratory of Water, Biodiversity, and climate change Faculty of Science Semlalia, Cadi Ayyad University Marrakech-Morocco

16:30 – 17:00

Water Food & Energy Energy

Dr. Sanaa ZEBAKH- Director of cooperation & partnership -Ministry HESRI-Morocco

17:00 – 17:30

Water/Food:

Mr. Mondher KHANFIR - Board Member at AMA @ Station F.

17:30 – 18:00

Multi-Soil-Layering Technology: An Environmental-Friendly Solution for Wastewater Treatment and Reuse to Face Water Scarcity

Prof Laila MANDI - National Center for Studies and Research on Water

WRAP-UP & Closure



- b) theatre reading on the positive impacts of science on human life;
- c) debates;
- d) "researchers' dating"(meet researchers and ask them questions);
- e) Competition on the three best WEF-Nexus projects, which will be awarded
- g) guided visits of labs, and the innovation city of Fez, usually closed to public.

Moderator: **Dr. Nicola TUCCI** Vice-Director of INNOLABS srl
Prof. Najiba EL AMRANI EL IDRISI : *Faculty of Science and Technoly - USMBA*

14:30-16:45:

14:30 - 15:0 Testimonial on practical experiences of a leading researchers: R&D finds innovative solutions adapted to specific problems of the different regions of the world

Prof. Adnane REMMAL, University Sidi Mohamed Ben Abdellah, Fès, Morocc

15:00- 15:20 Theater reading on the positive impact of science on human life: Quantum

Prof. Fahd KAGHAT University Sidi Mohamed Ben Abdellah, Fès, Morocc

15:20- 16:45 COMPETITION

Prof. HICHAM GHENNIQUI, University Sidi Mohamed Ben Abdellah, Fès, Morocco

16.45 – 17.00

Coffee Break

14:30-18:30: Al Khawarizmy Amplytheater

Khната Bennnouna* Award ceremony

The awards of the Khanatha Bannouna Foundation for Scientific Research for Youth organize the First Edition (2023) on Water research having a clear and direct socio-economic impact:

- The First prize: 25 000 DH
- The Second Prize: 15 000 DH
- The Third prize: 10 000 DH



Mai 24, 2023

09:00 - 11:00

PHEMAC Brokerage event [Link MS teams](#)

Moderator: Dr. Nicola TUCCI Vice-Director of INNOLABS srl

Speakers: Prof. Naima EL GHACHTOULI- University of Sidi Mohammed Ben Adellah
Prof. Kamal ABERKANI, University Mohamed 1st, Nador, Morocco
Prof. Yassine AIT BRAHIM, Mohammed VI Polytechnic University

Projet 1 **AGREEMed**: Mohammed VI Polytechnic University (UM6P); Yassine AIT BRAHIM

Innovative Aquifers Governance for Resilient Water Management and Sustainable Ecosystems in Stressed Mediterranean Agricultural Areas.

Projet 2 **ASTER**: University of Sidi Mohammed Ben Adellah (USMBA): Naima EL GHACHTOULI

Agroecology-inspired Strategies and Tools to Enhance Resilience and ecosystem services in tomato crop.

Projet 3 **DATI**: University of Mohammed 1st (UMP): Kamal ABERKANI
Digital Agriculture Technologies for Irrigation efficiency.

Projet 4 **ProSmallAgriMed**: University of Sidi Mohammed Ben Adellah (USMBA): Naima EL GHACHTOULI

Promoting soil fertility, yield and income in smallholder agriculture of semiarid and arid Mediterranean regions by management of beneficial soil microbiota, conservation agriculture and intercropping (ProSmallAgriMed)

11:00 - 11:30

Coffee Break

11:30 - 13:00

M41 Project Steering Committee Meeting:

To review of tasks, **deliverables & milestones status (only address pending ones and present agreed road map with involved partners)**, risks, contingency measures update of Gantt and Pert, interlinkage / inter-dependency with other WPs for delivery, **bottlenecks** within WP and proposed **mitigations**, significant related events to the WP (dates & venues), and interactions with other WPs and/or projects. Each presentation (max: 15 minutes).

11:30 to 11:35 Welcome note from Project coordinator. Brief week review.

11:35 to 11:50 Progress update of WP1 (ASRT)

11:50- 12:05 Progress update of WP2 (AUB)



12:05 to 12:20	Progress update of WP3 (ECITD)
12:20 to 12:35	Progress update of WP4 (RSS)
12:35 to 12:50	Progress update of WP5 (INNOLABS)
12:50 to 13:05	Progress update of WP6 (UAB)
13:05 to 13:15	AoB

WA2EN Program' 2023
Faculty of Sciences and Techniques, Fez

May 22, 2023 : 11.30 – 13.30

Theme: Water & Environment

Room 1

Chairman : Prof. Lahcen Benaabidate

<i>VALORISATION DES LIXIVIATS DE LA DECHARGE CONTROLEE DE LA VILLE DE FES</i> ABDELAZIZ TOUZANI, ENSA Al-Hoceima	01
<i>INVESTIGATING THE EFFECTS OF SOIL HEAVY METAL CONTAMINATION FROM THE ABANDONED ZEDA MINE IN THE UPPER MOULOUYA BASIN, MOROCCO. AN AIRBORNE DUST POLLUTION IN SEMI-ARID CLIMATE CONDITIONS.</i> ABDELMOUIZ ECH-CHAREF, FS Meknes	02
<i>ANALYSIS OF THE WATER QUALITY USED IN THE COOLING OF SOLAR PANELS</i> ALI AIT ALI, ENSA Fès	03
<i>EFFET DE L'EPANDAGE DES MARGINES BRUTE SUR GERMINATION, CROISSANCE ET DEVELOPPEMENT DE LA FEVE (VICIA FABIA)</i> EL HASSANE KASMI, FS Oujda	04
<i>LA SECHERESSE CLIMATIQUE : ETUDE DE L'EVOLUTION DES PHENOMENES DES SECHERESSES AU NIVEAU DU BASSIN VERSANT DE SOUSS-MASSA (SUD DU MAROC)</i> MARYAME EL-YAZIDI, FST Fès	05
<i>INONDATIONS MEDITERRANEENNES EN MILIEU URBAIN : CAS DU GRAND BERKANE</i> HAFSSA AFIF, FS Oujda	06
<i>BENTHIC FORAMINIFERA: A PROMISING MONITORING TOOL FOR THE MARINE ECOLOGICAL STATUS IN THE T'ETOUAN COAST, NORTH WEST MOROCCO</i> HAITAM AFILAL, FST Tanger	07
<i>IMPACT DU CHANGEMENT CLIMATIQUE ET ANTHROPIQUE SUR LES RESSOURCES EN EAUX DU CAUSSE EL MENZEL, MOYEN-ATLAS, MAROC</i> ILASSE NOUADIR, FS Dhar El Mahraz	08
<i>CARTOGRAPHIE DE L'ALÉA D'INONDATION DANS LA COMMUNE D'AIN BENI MATHAR, CAS DU BASSIN VERSANT D'OUED EL-HAI</i> IMANE AMAR, FS Oujda	09
<i>CHARACTERIZATION OF ZIZIPHUS LOTUS' ACTIVATED CARBON: ISOTHERMAL STUDY AND METHYLENE BLUE'S ADSORPTION KINETICS</i> IBRAHIM TOUZANI, FST Fès	10
<i>AMELIORATION DES PERFORMANCES DE LA STATION DE DESSALEMENT DE L'EAU DE MER D'AL HOCEIMA PAR LA METHODE AMDEC</i> IMANE ADUERYAGEL, FS Tétouan	11

Room 2

Chairman : Prof. Fouad Dimane

<i>EVALUATION DE LA FIABILITE DES PRODUITS DE PRECIPITATION SATELLITAIRES POUR LES ETUDES CLIMATIQUES ET HYDROLOGIQUES DANS LE BASSIN HAUT DRAA, SUD DU MAROC</i> KHALID EN-NAGRE, FS Tétouan	12
<i>THE EFFECT OF COVID-19 LOCKDOWN ON WATER QUALITY AND SEDIMENT RELEASE IN MOROCCO'S SEBOU RIVER</i> LAMYAE MARDI, EST Fès	13

<i>CARTOGRAPHIE ET ANALYSE DE LA VARIABILITE SPATIO-TEMPORELLE DES EAUX SOUTERRAINES DE LA NAPPE PHREATIQUE DE SAÏSS PAR UNE APPROCHE GEOSTATISTIQUE</i> MANAL EL GAROUANI, FST Fès	14
<i>UTILISATION DE LA TELEDETECTION RADAR POUR L'ETUDE DU PROBLEME DE L'ENVAISEMENT DES BARRAGES, CAS DU BARRAGE ABDELKARIM EL KHATTABI A LA REGION D'EL HOCEIMA AU MAROC</i> MOHAMMED MOURJANE, USMB Fès	15
<i>USE OF COAGULATION-FLOCCULATION PROCESS FOR THE TREATMENT OF REAL TANNERY WASTEWATER FROM FES CITY (MOROCCO)</i> OUMAIMA BAHAMMOU, FST Fès	16
<i>ÉTUDE DES SÉQUENCES DE SÉCHERESSE DANS LE BASSIN GUIR</i> SAFAE DAFOUF, FST Fès	17
<i>SYNTHESIS OF FUNCTIONALIZED PHOSPHINE OXIDES: APPLICATION TO TRACE METAL ION DETECTION IN WATER</i> SAMB ISSA, UAD de Bambey, Senegal	18
<i>WATER FEATURE EXTRACTION AND CHANGE DETECTION USING SAR IMAGE</i> SANAE ATTIOUI, FST Fès	19
<i>HYDROLOGICAL MODELING FOR WATER RESOURCE MANAGEMENT IN DATA-SCARCE REGIONS: A CASE STUDY OF THE UPPER ZIZ BASIN, MOROCCO</i> ZOUHIR DICHANE, FS Meknes	20
<i>IN SITU DEPOSITION OF AG NANOPARTICLES ONTO CF/RGO HYBRIDS FOR THE DIP-CATALYTIC HYDROGENATION OF 4-NITROPHENOL INTO 4-AMINOPHENOL</i> IMAN TAZI, FST Fès	21
<i>EVALUATION OF DROUGHT IN A MEDITERRANEAN REGION, CASE STUDY OF THE UPPER OUM ER RABIA BASIN, MOROCCO</i> MOHAMMED MOUAD MLIYEH, FST, Fes	22
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May 22, 2023: 14.45 – 16.15

Theme: Agriculture & Energy

Room 1

Chairman : Prof . Naima EL GHACHTOULI

<i>EXPLORING PLANT GROWTH-PROMOTING RHIZOBACTERIA IN THE DATE PALM TREE RHIZOSPHERE OF SOUTHERN MOROCCO'S OASIS ECOSYSTEM</i> AHLAM MBARKI, FS Rabat	24
<i>NEMATICIDAL ACTIVITY OF MORINGA OLEIFERA AND CHAMAEMELUM NOBILE AGAINST CITRUS NEMATODE TYLENCHULUS SEMIPENETRANS</i> BTISSAM ZOUBI, FS Dhar El Mahraz	25
<i>EVALUATION DES IMPACTS DU CHANGEMENT CLIMATIQUE SUR LE NEXUS WEF''</i> GHIZLANE EL MAJDOUBI, UAE Tétouan	26
<i>PREDICTING PHOTOVOLTAIC SYSTEM POWER OUTPUT USING MACHINE LEARNING</i> MOHAMMED BOUJOUJAR, FST Fès	27
<i>POTENTIAL OF RHIZOBACTERIA ISOLATED FROM OPUNTIA FICUS- INDICA IN IMPROVING PLANT GROWTH AND RESISTANCE TO WATER STRESS</i> ILHAM ZQUITANE, FST Fès	28

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Room 2

Chairman : Prof. Kamal ABERKANI

<i>ISOLEMENT ET IDENTIFICATION DE BACTÉRIES ISSUES DE LA RHIZOSPHERE DE L'OLIVIER DU SUD DU MAROC : TOLÉRANCE AU STRESS HYDRIQUE, FAVORISATION DE LA CROISSANCE DES PLANTES ET POTENTIEL ANTAGONISTE CONTRE LA VERTICILLIOSE</i>	32
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May 23, 2023: 11.30 – 13.00

Theme: Agriculture & Energy

Room 1

Chairman : Prof. Aicha ALAMI HASSANI

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FLOUCHI RACHID, FST Fès	

Room 2

Chairman : Prof. Said NAJAH

<i>ENHANCE BARLEY (HORDEUM VULGARE L.) TOLERANCE TO DROUGHT STRESS USING PLANT GROWTH-PROMOTING RHIZOBACTERIA (PGPR)</i>	45
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POSTER SESSIONS

May 22, 2023: Morning

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<i>INSPECTION OF STRUCTURES IN THE PROVINCE OF MOULAY YAACOUB: SCOURING IS THE MAJOR DANGER</i> CHAYMAE NAAZA, FST Fès	01
<i>PHYTOCHEMICAL, ANTIOXIDANT, ANTIMICROBIAL AND ANTIPROLIFERATIVE POTENTIAL OF INULA VISCOSA</i> DOUAE BELAHGEN, FP Taza	02
<i>INFLUENCE OF THE MATURITY INDEX OF OLIVES ON THE CHEMICAL COMPOSITION OF THE OLIVE OIL "MOROCCAN PICHOLINE</i> SIHAM BECHAR, EST Sale	03
<i>SALINITY EFFECT ON MORPHOLOGICAL AND BIOCHEMICAL TRAITS IN MEDICAGO SATIVA VARIETIES CULTIVATED IN MOROCCO</i> NASSIRA SRHOUAR, FST Fès	04
<i>APPLICATION DE LA TELEDETECTION A L'ANALYSE STRUCTURALE ET HYDROGEOLOGIQUE DE LA DORSALE CALCAIRE (RIF INTERNE, MAROC)</i> YOUNESS TAYBI, FP Nador	05
<i>PREPARATION DE CHARBON ACTIF A PARTIR DES DECHETS SOLIDES INDUSTRIELS : EFFET DES PARAMETRES OPERATOIRE SUR LES CARACTERISTIQUES ET LE RENDEMENT</i> SOUAD EL ALAMI, USMBA Fès	06
<i>EFFECT OF CHROMIUM ON THE PHYSIOLOGICAL PARAMETERS OF FABA BEAN (VICIA FABA)</i> SOUKAYNA AZZOUZI, UMS Rabat	07
<i>ETUDE PHYTOCHIMIQUE, DOSAGE DES COMPOSES PH'ENOLIQUES DES EXTRAITS M'ETHANOLIQUES DES FEUILLES ET DES TIGES DU THYMUS VULGARIS.</i> ILHAME KHOURRAG, FS Kénitra	08
<i>ENVIRONMENTAL IMPACT OF LANDFILL LEACHATE: APPLICATION OF PRINCIPAL COMPONENT ANALYSIS</i> IMANE EL MACHRAFI, FS Dhar El Mahraz	09
<i>A TECHNO-ECONOMIC STUDY OF BATTERY ENERGY STORAGE SYSTEMS FOR GRID-SCALE APPLICATIONS</i> MAHIR OUMAIMA, USMBA Fès	10

May 22, 2023: Afternoon

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<i>UPDATE OF THE LIST OF MEDICINAL PLANTS TRADITIONALLY USED IN THE PROVINCE OF TAZA</i> FZ. ELABOUI, FP Taza	11
<i>EFFECT OF HEALTHY EATING HABITS ON PHYSICAL ACTIVITY LEVELS</i> HAMID EL DIRDI, UMI Meknès	12
<i>EXTRACTION ET CARACTERISATION DE LA CHITINE ET DU CHITOSANE A PARTIR DES CARAPACES DES CRUSTACES</i> HANANE IBAGHLIN, USMBA Fès	13
<i>UNLOCKING THE POTENTIAL OF DIGESTATE AS A BIO FERTILIZER FOR SUSTAINABLE AGRICULTURE AND RENEWABLE ENERGY</i> JALAL HSAINE, IAV Hassan II	14
<i>ETUDE PHYTOCHIMIQUE ET QUANTIFICATION DES COMPOS'ES PH'ENOLIQUES DES EXTRAITS M'ETHANOLIQUES ET AQUEUX DU NOYAU DE PERSEA AMERICANA (FUERTE)</i> JIHANE LAARIFI, FS Kénitra	15

<i>FIRST REPORT OF GENETIC RELATIONSHIP AND DIVERSITY AMONG MOROCCAN AND INTRODUCED RAPESEED (BRASSICA NAPUS L.) VARIETIES AS REVEALED BY MOLECULAR MARKERS</i> KARIM HOUMANAT, IAV Hassan II	16
<i>USE OF SPIRULINA AS AN ALTERNATIVE TO SYNTHETIC ANTIOXIDANTS</i> KARIMA EL KABOUS, FS Kénitra	17
<i>SOIL NITRATE CONCENTRATIONS MONITORING IN A POTATO FIELD IN THE SAISS BASIN</i> CHAIMAE NESSAH, INRA Meknès	18
<i>PHENOLOGICAL EVALUATION OF FOUR FIG (FICUS CARICA L.) VARIETIES GROWN IN NORTHERN MOROCCO</i> MOHAMMED ELMEKNASSIA, FP Taza	19
<i>AN ASSESSMENT OF SEA TURTLE BYCATCH BY BOTTOM TRAWLERS AND PURSE-SEINERS IN THE CENTRAL ATLANTIC COAST OF MOROCCO (AGADIR)</i> MOUNIA TOUAF, FS Tétouan	20

May 23, 2023: Morning

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<i>NITRATE TRANSPORT SIMULATION IN MENZEL BOURGUIBA AQUIFER SYSTEM (NORTHEASTERN TUNISIA)</i> INES AYARI, FS El Manar Tunisie	
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<i>PHYSICO-CHEMICAL AND GEOCHEMICAL CHARACTERISTICS OF BOUAAZZA'S MINE EMBANKMENTS AND RIVER SIDEMENTS (TAZA PROVINCE, MOROCCO)</i> IKRAM LAHMIDI, FST Fès	24
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WA2EN Program' 2023
Faculty of Sciences and Techniques, Fez

May 22, 2023 : 11.30 – 13.30

Theme: Water & Environment

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