

**Master in Agricultural and hYdrological Approaches to
 a better and sustainable development (MAYA)**

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1st Conference of the MAYA Masters



*Scientific cooperation in the Mediterranean region: capacity building, multidisciplinary approach and multi
 -agency partnership*

Tunis, Tunisia, 7th December 2019

Venue: POLYVALENT hall of the Faculté des Sciences de Tunis El Manar FST, Tunis



Registration of the participants and Wel-
 come message from Nouredine Amdou-
 ni, Doyen of FST and Fethi Sellaouti, Presi-
 dent of UTM



Malek Kochlef, Directeur Général de la Coopération Internationale du MESRS, Tunisia

Communication



The cooperation between Tunisia and Europe is very solid and once the partners have been identified, it follows a differentiated approach for each partner. Among these, the most important are from the Euro-Mediterranean area and the Ministry is constantly working on consolidating these relationships.

The Ministry also has collaborations with other continents such as America and Asia and we have good experiences with Canada. Even with the Arab countries. I stress the importance of the Erasmus + program for the Ministry of Education, for which we have over 40 initiatives in the last 5 years. In 2015, over 500 mobility took place between Tunisia and Europe. In 2018 were already over 1500. There are issues and aspects that need to be improved but we are making progress. We also have several H2020 projects and this is a sign of the quality of research in Tunisia. In the last years we have been trying to have an even more active approach in the proposal of projects as well as in the success and approval by the Commission. There are all the elements to enter the network of the most advanced European research centers. Furthermore, a point to be strengthened but already developed is the south-south cooperation beyond. About 400 Algerians come to study in Tunisia.

The same goes for students from Morocco and Arab countries. The MESRS warmly welcomes Capacity Building projects such as MAYA and thanks the whole partnership for the work it is doing.

Tarek Chaabouni, Chef du département central épuration et valorisation, ONAS, Tunisia

EDUCATION ET DEVELOPPEMENT DES COMPETENCES. SYNERGIES AVEC INSTITUTION PUBLIQUE L'ONAS



ONAS is the national agency dedicated to water quality and manages numerous purification stations throughout Tunisia. Its commitment is to promote the reuse of wastewater in agriculture. The water resources available in Tunisia are limited and every 7 years the Arab world loses fresh water reserves corresponding to the volume of the dead sea.

Also in Tunisia the demand for water and the tensions generated by its scarcity condemn Tunisia to chronic suffering. The national strategies of Acqua 2000 and Acqua 2050 have identified the structural problems but much remains to be done.

ONAS promotes the reuse of treated water in agriculture. In this activity, several benefits are reported, among them: Economy and conservation of resources in conventional waters, Protection of the receiving environment, Improved crop yields, Soil conservation and improvement. ONAS manages over 120 purification stations throughout Tunisia, the treated water volume is 275 million m³. of these only 60 million are reused. However, there are several problems related to the re-use of these waters, including: the inadequate regulatory framework, restrictions on the list of crops authorized for irrigation with TWW, poor infrastructure, water quality instability.

ONAS wants to invest in TWW by strengthening various strategies, in addition to managing some research and development programs with foreign and national partners. It has activated some collaboration plans in the framework of European projects and invests heavily in the technologies to be used in TWW's laboratory analyzes.

Leila Ben Dhiab, Ministère de l'Agriculture des Ressources Hydrauliques et de la Pêche, Sous Directeur de la recherche Expérimentale, DRS – DG ACTA, Tunisia

Encounter between demand and supply of agronomic scientific knowledge: co-evolution of objectives and approaches of agronomic research

The Directorate General for the Development and Conservation of Agricultural Land is responsible for Developing plans and guidelines for better preservation of natural resources (soils, vegetation, water and agricultural land); for proposing, developing and promoting all measures ensuring a better use of natural resources; for evaluating soil resources and their vocation, for elaborating studies and research; for ensuring coordination between all stakeholders in water and soil conservation, and evaluating the arrangements for water and soil conservation. The state of art regarding the Tunisian soil resources were presented and on a total Area of 16,400,000 ha only the 21,5% is fertile. The 94% of the Tunisia country is considered arid, where agriculture remains dominated by rainfed for ¾ farmers. The soil degradation process is due to water erosion, wind turbines, salinization, urbanization. Agriculture in Tunisia has a duty of food security and a crucial role in social stability and cohesion and economic development. It will have to produce more and better in a context strongly constrained by: increasing scarcity and degradation of natural resources (soils, water and biodiversity); recurrent socio-economic difficulties and climate change process. A paper produced by the Institute for agricultural research and higher education IRESA, "DRAFT STRATEGIC ACTION PLAN FOR IMPROVING AND REFORMING THE AGRICULTURAL HIGHER RESEARCH AND AGRICULTURE AND TRUSTEESHIP SYSTEM" addressed an important role to be played by researchers since it is more and more important to: transfer / disseminate technology and innovation and existing validated solutions (extension) for farmers through accompanying measures (convention / partnership / project /) on the sustainable development of territories. In Tunisia there are seven agricultural higher education institutions hosting around 120 master students per year. About twenty masters are proposed: 12 research masters 8 professional.



The requests for agronomic scientific knowledge is improving and the need for the development of knowledge engineering (research) it is mandatory to contribute in the: management of water and soil; Management of common resources Forests and rangelands; Valorisation of Agricultural Products –production chain; political dialogue on the sustainable development of territories.

Karim ERGAIEG, Coopla-net, GDA Sidi Amor, INAT

La société civile partenaire de la recherche: le site pilote Sidi Amor, un tremplin vers les emplois verts

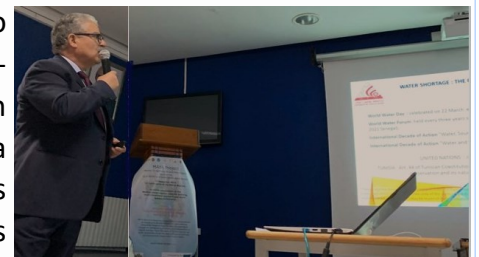


The experience of Sidi Amor is the demonstration of how in an abandoned, degraded site, and attacked in various aspects, it has been possible through the efforts of civil society to have extraordinary results, as well as official recognition at national level for the quality of the products made. It has also become a research site where you can do field work to learn and exchange knowledge. It was conceived as a collaboration area between the 5 continents. Several doctoral theses have been researched as much as civil society and researchers have done on this site. There are many activities carried out and permanently active in the redeveloped areas: work on rosaries, distillation for perfumes, quality coffee and handcrafts. Any soil has a certain value, even the most degraded, so only the right methods of use must be found. For example, workshops were organized to make bricks with earth. On the site we had no water, and all the agricultural production was carried out by bringing water with the tanks.

Bechir Hamrouni, University of Tunis El Manar

Water shortage: Opportunity and expected impact from the MAYA Master at the University of Tunis El Manar

Prof. Hamrouni listed: the main challenges linked to water shortage in Tunisia; the main world events focused on the water strategies debate. The situation of water scarcity is suffering the Mediterranean area is affecting around 20 millions people without access to drinking water. Efforts to provide new strategies for fighting against waste and leakage are still required as well as training and research. This is the context where the idea of the Master GIREAD was born. The new Master course is in line with the Bologna process requirements and aim at achieving international transparency and academic recognition. It aims to increase the capacity building among staff and involved target groups to promote long-term improvements in teaching, learning and IWAM.



Radhouane Gdoura, University of Sfax

Opportunity and expected impact from the MAYA Master at the University of Sfax,



The aim of the Master GIREAD is to develop a Master in integrated water management and sustainable agriculture in arid and semi-arid regions that meets the needs of professionals and socio-economic actors in these regions. The general idea behind the master structure is to complete the knowledge and skills acquired by students during their basic degree courses in Geography, Life and Earth Sciences, Life Sciences and the Environment, with a view to motivating them for research activities. The Sectoral Commission of Geography approved the Master in April 2019. The Master started in October 2019. Among the advantages of the Master there is the wide range of topics covered, and therefore a wide range of outlets in the fields of environment, water management, spatial planning and sustainable agriculture. The expected impact on the student knowledge are; a multidisciplinary teaching approach to deal with the needs of the socio-economic sector and thus facilitating professional integration in the fields of water, agriculture and the environment; new interest in applied scientific research that can help the development of the country.

Mohamed Abdeladhim & Talel Stambouli, University of Carthage

Opportunity and expected impact from the MAYA Master at the University of Carthage,

Tunisian agriculture faces many challenges: the preservation of natural resources, food security, adaptation to climate change, etc. The implementation of integrated water resources management (GIRE) is the key to a sustainable agricultural development (AD). GIRE is a complex thematic area to be managed. The main objectives of the Master are: to provide students with the knowledge, the best adapted, to deal with the complexity of an integrated management of water resources; to support the professional integration of students and to consolidate public efforts to establish good governance of water resources. The new Research Master of the LMD System respect the Decree n ° 2012-1227 of August 1, 2012, fixing the general framework of the study regime and the conditions for obtaining the national master's diploma in the "LMD" system. The studies leading to the obtaining of the national master's diploma last two years (M1 and M2) and include one hundred and twenty (120 ECTS) credits spread over four semesters (S1, S2, S3 and S4). The semester includes at least fourteen (14) weeks of instruction. The request for approbation for the Master GIREAD managed by UCAR was submitted on April 2019 and approved on the 14th August 2019. Among the advantages of the Master there is the innovative online training, delivered by EU partners, using didactic modules on advanced technologies and integrated tools. The expected impacts of the Master are: the development of new ideas for cooperation between partners; the intensification of collaborations between the professional sphere and the academic sphere in order to identify development constraints and guide teaching and research; strengthen institutions capacity with specific skills.



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of the European Union

Luciano Gutierrez, University of Sassari

MAYA is Capacity building

The project started about 2 years ago. The partnership has worked well and within the time established, concluding the WPs envisaged by the approved project. The various activities that led to the celebration of the start of the Masters in Tunisia were briefly reviewed. In the last year of the project there are some activities already started but not yet concluded, others to be performed before the end of the semester 2 as is the case of the students' mobility. Further goal to be reached are agreement among Tunisian Universities and Stakeholders; MoU among the group of Maya Universities to develop joint courses, students/teachers mobility and research programs.



Matteo Funaro, University of Sassari

Scientific Diplomacy



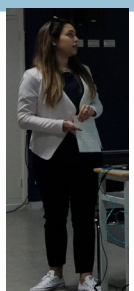
Scientific cooperation has a priority role in European neighbourhood policy and more generally in international relations. The MAYA project, coordinated by the Desertification Research Unit of the University of Sassari, incorporates and promotes new tools to advance ongoing capacity building processes in Tunisia through the transfer of new technologies such as reality and new teaching methods. The Erasmus + program offers important possibilities for strengthening exchanges and ensuring high-level collaboration between researchers from different countries. Among the benefits of this program there are the possibility to freely cross borders for exchanging experiences and ideas, share values and bring common projects to life. In this sense, Erasmus +, the MAYA project and other past and current UNISS cooperation projects are an integral part of the EU's foreign and diplomatic policy, as well as of the new EU-Africa strategy, in which the higher education, the information society and youth cooperation play a key role.

Isabella Fois and Gabriele Dore, University of Sassari

Experiences from Erasmus international opportunities



General overview on the aims of the programme Erasmus+. Personal Experiences in Madagascar and Romania. Erasmus KA107. Erasmus innovation. Data about Erasmus+. Advantages from an abroad experience. European Solidarity Corps opportunities.



GIREAD Master students

Observation, consideration and willingness

The students gave a heartfelt "thank you" to their teacher and MAYA partners. They provided a general impression from the presentation heard during the conference. They highlighted the qualities of the MAYA project, its aims and expected outcomes. They showed their impatience to test the VR Game and to have training on the field.



Mohamed Nejib Zarrouk, Zina Fresh

Challenges in Tunisia, actual and future opportunities

Member of the cluster "Primeurs du Sud" which includes 13 founding members including 6 companies. The company located in the municipality of El Hamma (Gabes) is specialized in greenhouse cultivation of tomatoes, cherry tomatoes and aubergines using south Tunisia geothermal waters. Agricultural production uses this water to heat greenhouses to produce very early crops for export. The company also carries out desalination processes of geothermal water for irrigation, which allows to increase their physical efficiency (productivity of the cubic meter of water) and their economic valuation. Zina Fresh collaborates with several Tunisian universities: Gabes, Sfax, Sousse, etc. Multiple PFEs were carried out in collaboration with Zina Fresh. The company has also hosted several doctoral projects whose subjects relate to the functioning of greenhouses and irrigation techniques. It also participates in collaborative research projects (example, PRF project).



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- ◆ **TWITTER :** [HTTPS://TWITTER.COM/ERASMUSMAYA](https://twitter.com/erasmusmaya)