DESERTEC
UNIVERSITY NETWORK (DUN) e.V

RE&Agri

Under the High Patronage of His Excellency :
Mehdi Jomaa, President of the Tunisian Government

International Conference On

Renewable Energy Applications for a Sustainable Agriculture

Plenary Sessions
Workshops
Panels

d1

> Opportunities and challenges for RE use in agriculture

> Selected RE technologies & innovations: solar, wind, biomass and geothermal

d2

> Sustainable Energy use in the Agriculture and Food Industry: economics & business models

> What policies are needed to promote investments in RE for Agriculture

d3

> Research Development and Demonstration

> Identification of RD&D priorities, and opportunities for partnerships

2-3-4
December 2014

Hôtel EL Mouradi Gammarth – Tunis

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Contents

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Welcome message

The International Conference on Renewable Energy Applications for a Sustainable Agriculture Reagri is intended to create an open space networking and exchange of information and knowledge on RE innovations and their application in different domains in agriculture with a bearing on research and development. Bridging the gaps in science, technology and innovation is a key to enhance institution's capacity to use more & more RE in different sectors, particularly in agriculture. During three days, presentations, discussions, and side events will inspire new ideas and innovations that will support our work in enhancing innovation capacity for agricultural transformation.

We hope that this international event will give opportunities for close collaborations, and strategic alliances in scientific research, projects and business partnerships that will contribute efficiently for a modern and efficient agricultural systems thru the use of RE , and for the attenuation of the impact of climate changes.
We catch this opportunity to thank our stakeholders, partners and donors who have supported us during the last years to reinforce DUN's missions and activities.

Mouldi Miled
Chairman of DESERTEC University Network

Contributing to the implementation of the DESERTEC Concept in the MENA region

Desertec University Network (DUN) e.V is a non-profit association registered at the court of Hamburg Germany: 'Registration number: VR 21658'.

DESERTEC
UNIVERSITY NETWORK (DUN) e.V

Objectives and mission (Article 2 of the statuts)

" DUN is an international academic research and innovation network, aiming at contributing to the implementation of the DESERTEC Concept in the MENA region, through the following principal objectives:

1. *Bringing together public and private scientific, technological, research, development and academic institutions interested in and capable of contributing to the implementation of renewable energy systems in general and the DESERTEC Concept in particular.*

2. *Promoting the development of human resources, so that energy systems can be constructed with a maximum of local products and services.*

3. *Contributing to the design, manufacture, installation, operation and maintenance of future energy systems by means of training, education, and R & D for the industrial production of equipment, devices and products, as well as for all related services.*

4. *Employing the energy cooperation across the Mediterranean for development of good neighbourhood relations."*

EU-MENA Research Institute for Sustainable Energy (RISE)

The institute is expected to serve as the leading forum for xchange of ideas and expertise about sustainable energy transitions in the MENA region. In that context, the vision and mission of the nstitute is defined as follows:

Vision and Mission

Vision Statement:

Empowering the scientific community in addressing the challenges of creating a sustainable energy basis in MENA and serving as a knowledge and information hub for decision makers from policy, economy and civil society.

Mission Statement:

A catalyst for scientific work in the area of socio-economic questions related to energy system transformation, climate change and the energy-water nexus in the MENA region.

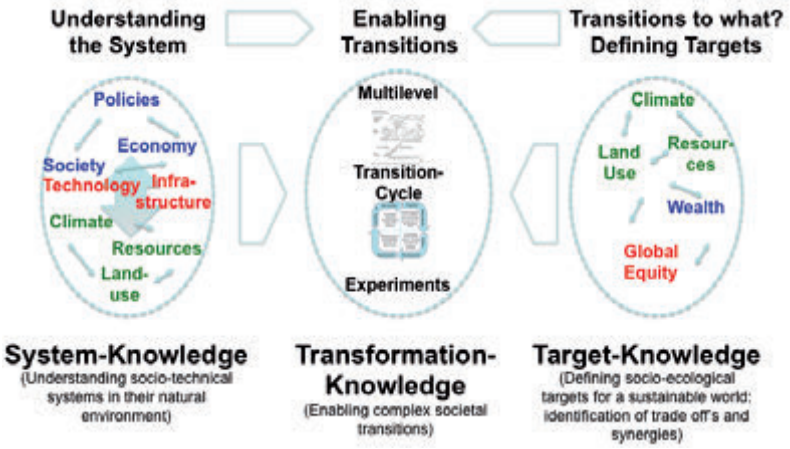
Research Focus

The institute's research is focused on questions related to:

- Energy system transformation
- Energy and climate change
- Energy-water nexus

For the MENA region, these three topics are of paramount importance for several reasons: Exploring the patterns of Energy system transformation from fossil fuels to renewable energies notably from desert regions will be a key research activity because of the multitude of pressures challenging the incumbent, fossil fuel-based energy supply structures of the MENA region.

An outline of the research approach



Schematic of transformative science approach (source: Wuppertal Institute)

Energy systems must quickly be modernized and adopt new technologies in order to cope with the soaring demand and increasing energy costs, but must also satisfy the aspirations of MENA populations for more participation, economic welfare, employment and a sustainable future.

Climate change and the Energy-water nexus are additional topics deserving the attention of the scientific community, as both issues are very strongly linked with the energy question and are garnering increasing significance because of the MENA region's particular vulnerability to climate change and water scarcity.

DUN's Initiative Reagri

Humanity faces difficult tradeoffs in producing sufficient food to feed our growing population and stabilizing our climate system. Globally, our food system is not sustainable, does not provide adequate nutrition to everyone on the planet and, at the same time, changes to our climate threaten the future of farming as we know it. Agriculture is both part of the problem and part of a solution to climate. We must seize every opportunity to shift away from inefficient farm practices, supply chains and diets choices towards long-term sustainability, profitability and health.

The diversification of energy sources and their use in an efficient manner contribute to mitigate the impact of climate change on agriculture in different area in the world, and could be a major driver in this process. Also, the energy input to modern and sustainable agriculture production and processing systems is a key factor in moving beyond subsistence farming towards food security, added value in rural area and expansion into new agricultural markets.

Thus, DUN aims at carrying a project for renewable energy in agriculture sector in order to implement pilot projects in MENA region to promote its use with an efficient manner.

The links between energy inputs and improvements in agricultural productivity and profitability are very close and the benefits can be widely spread for rural economic and social development through:

- Raising farmers and rural incomes;
- Stimulating the local economy by creating innovative projects and reinforce the employment;
- Avoiding population migration, especially youth, into peri-urban and urban centers by offering job opportunities.

The project aims to highlight the important role played by modern energy services and related technologies in the modern agricultural production process for smallholders in developing countries. It will focus on energy input in agricultural production systems, processing and commercialization in order to increase crop and animal productions and add value to products, enhance food security, increase income for farmers and rural enterprises.

Program Committee

Pr. Ahmed Al-Salaymeh	Jordan University - Amman
Pr. Chiheb Bouden	Ministry of Higher Education - Tunisia
Pr. Amine Boudghene Stambouli	USTO - Algeria
Pr. Mohamed Aziz Darghouth	IRESA - Tunisie
M. Mohamed Hadj Kacem	APIA - Tunisie
Pr. Manfred Fischedick	WUPPERTAL Institut - Germany
Pr. Samir Flazi	USTO - Algeria
Pr. Adel Khalil	Cairo University - Egypt
Dr. Nadejda Komendantova	IIASA - Austria
Dr. Gerhard Knies	Desertec University Network
Pr. Mekki Ksouri	Esprit University - Tunisia
M. Mouldi Miled	Desertec University Network
Pr. Ali Rhouma	IRESA - Tunisie

Tuesday 02 December 2014

Morning Session

08:00-09:00	**Registration**
09:00-09:30	**Official OpeningCeremony :** • Welcome and introduction from the Conference Chair (**MouldiMiled-Chairman DUN**) • His Excellency **Nidhal Ouerfelli** Minister to the Head of Government responsible for the coordination and monitoring of economic affairs (t.b.c)
09:30-11:00	**1st Plenary Session :Opportunities and challenges for RE use in agriculture** Session Chair: **Prof. Chiheb Bouden (General Director of Higher Education)** • The Energy Transition challenge in Tunisia: RES policy framework for 2030 **(Mr.Mouldi Miled- Chairman of DUN)** • Opportunities and challenges for RE use in agriculture: the Tunisian case (**Prof.Ali Rhouma- IRESA**) • Risk governance of energy transition (**Dr. Komendantova Nadejda - IIASA**) • Impact of Agriculture on Socio-Economic development (**Mr.Matthieu Le Gris- AFD**)
11:00-11:30	**Coffee Break**
11:30-13:00	**2nd Plenary Session: Opportunities and challenges for RE use in agriculture** Session Chair: Mr Abderrahman Chaffai (General Managaer APIA) • Growing Power: Exploring energy needs in smallholder agriculture (**Dr Sarah Best- IIED**) • Vertical Farm: An innovative greenhouse concept with 100% water recycling(A DLR study presented by **Dr Gerhard Knies**) • Solartech-Sud: The key Agriculture components (**Mr. Ahmed Bassalah-General Manager Solartech-Sud**)
13:00-15:00	**Lunch**

Tuesday 02 December 2014

Afternoon Session

15:00-17:00 **Panel 1 : Selected RE technologies & innovations: solar, wind, biomass and geothermal**

Moderator: **Prof. Abderraouf Laajimi (General Director ONAGRI)**

Main Topics:

- Overview of RE technologies: Solar, wind, biomass and geothermal
- Renewable Energy for water and irrigation
- Potential of Biomass and bio-energy
- Potential and applications of Geothermal in MENA region
- Diagnostic d'identification des sites à potentiel hydroélectrique
- Pompage de l'eau par l 'énergie solaire photovoltaique

Panelists:

- Eng. Ridha Gabouj (DG. Genie rural-Ministry of Agriculture)
- Prof. Abdelaziz Mougou
- Prof. Amenallah Guizani (CRT-EN – Borj Cedria)
- Mr. Bechir Trabelsi (SONEDE)
- Mr Mokhtar Adouni (Centre technique sur la Géothermie-Ministère de l'Agriculture)
- Dr Sami Sayadi (CBS-Sfax)
- M. Guesmi Abdelkrim (Secadenord- SCP)
- Eng.Moaddeb Kamel (Direction Générale du Génie Rural)
- Mr. Mohamed Masmoudi (SATER-Solar)

> Opportunities and challenges for RE use in agriculture

> Selected RE technologies & innovations: solar, wind, biomass and geothermal

Wednesday 03 December 2014

Morning Session

08:30-10:45 **Workshop: Sustainable Energy use in the Agriculture and Food Industry: economics & business models**

Keynote address: His Excellency: **Lassaad Lachaal** ,Minister of Agriculture

Presentations:

1. Market development of solar energy in Tunisia (GIZ Tunisia)

- Presentation RE&AGR Economics & business models in Tunisia (**Mr Christopher Gross-GIZ**)
- Presentation of existing/planned projects (**Prof. Hichem M'saad- Volta-PV**)

2. Basic Energy Services (GIZ/HERA)

- Modern Energy services for modern Agriculture and Sustainable Value Chains in Agriculture (**Ms Dorothea Otremba, GIZ**)
- Cases from other countries

3. Powering Agriculture (GIZ / USAID / SIDA / OPIC / DukeEnergy)

- Powering Agriculture - An Energy grand challenge (**Ms Maria Weitz**)
- Network and Powering Agriculture wiki portal (**Mr Carsten Schüttel, GIZ**)

10:45-12:30 **Coffee Break and Discussion at the three information desks**

12:30-13:00 **Sustainable Energy use in the Agriculture and Food Industry: economics & business models (continued)**
Discussion & First Resume for Tunisia

13:00-15:00 **Lunch**

Wednesday 03 December 2014

Afternoon Session

15:00- 17:00 **Panel 2:What policies are needed to promote investments in RE for Agriculture**

Moderator : **Mr.Sami Marrouki (GM ECO-Ser and President of Tunisian CSR Institute)**

Main Topics:

- Financing the nexus: mechanism to promote innovation and investment
- Overcoming institutional framework: Existing tools and needed impulses
- Fostering Public Private Partnerships (PPP) for the management of the nexus
- Empowering Social and Environmental Entrepreneurs for Nexus Solutions

Panelists :

- Mr. Abdelkarim Ghezal (ANME)
- Mr/Ms Representative from APIA
- Dr. Hichem M'Saad (Volta-PV)
- Ms. Saima Qadir(Powering Agriculture)
- Dr. Komendantova Nadejda (IIASA)
- Ms. Maria Weitz (Powering Agriculture)
- Mr Habib Zgolli (Ministry of Industry Energy and Mines)
- Mr. Mohamed Masmoudi (SATER-Solar)

Thursday 04 December 2014

Morning Session

09:00-11:00	**3rd Plenary Session : Research Development and Demonstration** Keynote address: His Excellency **Taoufik Jelassi**; Minister of Higher Education, Scientific Research and ICT Chair Session: **Prof. Mohamed Aziz Dargouth (President IRESA)** • Enjeux et opportunités des technologies des E.R dans l'exploitation des eaux des lacs et barrages collinaires en Tunisie (**Eng.Hassen Chourabi &Eng.Slaheddine Ghedhoui – D.G ACTA**) • Creating Clean Integrated Low Carbon Local Development Poles around Decentralised Solar Power Plant (**Dr Yassine Allani- Allani Sunlife Holding, SA**) • Valorisation énergétique et agricole des margines: expérience semi industrielle (**Dr.Sami Sayadi -CBS**) • A bio electric system for the control of insects harmful to agriculture (**Prof Samir Flazi – USTO-Algeria**) • A Numerical study for the design of a solar tomato dryer (**Prof.Sadok. Guellouz –ENIB**) • Effets de la chaleur fournie par un capteur solaire à air sur la croissance des plants de tomate *(Lycopersicon esculuentum L.)* et sa production fruitière (**Dr.Douja Sellami,CRETN-Borj Cedria**)
11:00-11:30	**Coffee Break**
11:30-13:00	**Panel 3: Identification of RD&D priorities, and opportunities for partnerships** Moderator: **Prof. Khemais Zayani (D.G Valorisation de la Recherche- MESRS&ICT)** Panelists : • Prof. Brahim Bessaies (CRTen – Borj Cedria) • Prof. Amenallah Guizani (CRT-EN – Borj Cedria • Eng. Hassen Chourabi (D.G de l'ACTA – Ministère Agriculture) • Eng. Slaheddine Ghedhoui (D.G de l'ACTA – Ministère Agriculture) • Prof. Ali Rhouma (IRESA) • Prof. Abdelaziz Mougou • Dr.Hichem M'saad (Volta-PV) • Dr Yassine Allani (Allani Sunlife Holding, SA) • Prof.Marwan Haddad (Water & Environmental Studies Institute-Nablus) • M. Guesmi Abdelkrim (Secadenord- SCP)
13:00-15:00	**Lunch**

Thursday 04 December 2014

Afternoon Session

15:00- 16:00 **4th Plenary Session: Closing session**

Chair Session: **Prof. Nejib Lazhari (General Director of scientific Research)**

- Key issues & output of panels & workshop : Identification of priorities, and opportunities for partnerships (**Prof. Ali Rhouma- IRESA**)
- Recommendations: The "RE &Agri" project : roadmap and next steps (**Mr Mouldi Miled- Chair of the Conference**)
- Closing Adress: **Dr Gerhard Knies (Vice-Chairman –DUN)**

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

As a federal enterprise, GIZ supports the German government in achieving its objectives in the field of international cooperation for sustainable development. The services delivered by GIZ draw on a wealth of regional and technical expertise as well asproven management know-how. We are engaged around the globe inthe provision of demand-driven, tailor-made and effective services.

The three GIZ projects involved in this conference are:

- **Developing the solar energy market (DMS)**
- **Poverty-oriented Basic Energy Services (HERA)**
- **Powering Agriculture: An Energy Grand Challenge for Development (PAEGC)**

Developing the solar energy market (DMS)

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)
Country: Tunisia
Overall term: 2013 to 2016

Objective

A more enabling environment and relevant services for solar energy are in place. A sustainable market for small and medium-sized photovoltaic and solar-thermal energy systems is contributing both to sustainable economic development, especially in disadvantaged regions, and to reducing greenhouse gas emissions.

Approach

Together with partners at the national, local and regional levels, the project is implementing measures for a more conducive environment and improved services.

Market deepening: establishing local services

Local solar-market actors in the pilot region of Sfax – the energy agency, energy provider STEG, the city and governorate of Sfax, company representatives, banks, consumer organisations, etc. – are elaborating and jointly implementing a plan of action for improving investments. The lessons learned will be made available to other regions and to representatives of the national support policy.

Market expansion: developing new technologies and business models

The transparency of products and entrepreneurial services on the Tunisian solar market is being improved, hence intensifying competition between the enterprises in the sector. Moreover, the project is promoting quality and innovation in the introduction of new technologies and business models as well as among new market actors. Here, too, lessons learned are being compiled, edited and made available.

Supportive policy environment

In pursuance of (inter)national recommendations, bureaucratic impediments to investment, for example in connection with the implementation of state support programmes, are being overcome. Additional support measures, for example with regard to training and upgrading, are being optimised.

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Contact: Joerg.Oelschlaeger@giz.de
For further information see:
https://www.giz.de/en/worldwide/24251.html

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Poverty-oriented Basic Energy Services (HERA)

Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)
Countries: Global
Overall term: until 2017

Modern energy services for sustainable development - our mission

More than two billion people lack access to modern energy technologies and services worldwide.Their reliance on muscle power, traditional biomass and Kerosene renders them vulnerable to a range of adverse effects on health, the environment and socioeconomic conditions, such as household income, productivity and societal participation. Thus, access to reliable modern energy services is a crucial determinant for sustainable development.
In recognition of these facts, HERA aims to improve the access ofindividuals, businesses and social institutions to modern energy services.

Energy and Agriculture

With over one billion people employed in agriculture globally, modernizing agriculture is one of the most important factors for achieving food security, poverty reduction and sustainable development.
Energy plays a key role in this regard, as 30% of global energy production is absorbed by food production value chains. Resulting linkages cover all aspects from agricultural production to processing, distribution, retail and consumption.

Our role

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ is committed to the diffusion of modern and renewable energy technologies and customized solutions for energy service provision. Millions of people have already been supplied with sustainable energy thanks to GIZ projects, implemented in cooperation with partners from the public and private sectors.
As sector program, our role is to conduct concept development and knowledge management to support the up-scaling of successful approaches and raise awareness at national and international level.

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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For further information see:
http://www.giz.de/expertise/html/2769.html

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Powering Agriculture: An Energy Grand Challenge for Development (PAEGC)

(PAEGC) seeks to identify and support new and sustainable approaches to accelerate the development and deployment of clean energy solutions for increasing agriculture productivity and/or value in developing countries
Commissioned by: United States Agency for International Development, in Partnership with the Government of Sweden, Duke Energy Corporation, the Government of Germany and the Overseas Private Investment Corporation
Countries: Global
Overall term: 06/2012 - 12/2018

In support of this tenant, PAEGC seeks to fund solutions within the clean energy-agriculture nexus that: (i) Can achieve scale; (ii) Are adoptable within the context of emerging markets; (iii) Are sustainable, and can ultimately progress without outside assistance; and (iv) Utilize modern, evidence-based science and technology approaches.[1]

PAEGC has four key program components:
(1) Supporting clean energy technology and businesses model innovations for agriculture.
(2) Ensuring that financial intermediaries have the capital they need to help organizations scale their innovations and reach the farmers and farm-related businesses that need these technologies.
(3) Developing partnerships with public and private sector organizations that want to support the goals of the Powering Agriculture program.
(4) Serve as a clean energy and agricultural information resource for people around the world.

The **2ndPowering Agriculture Call for Innovation** is open for applications from **December 8, 2014** until **February 13, 2015 and will offer funding of between $500,000 and $2,000,000 USD**. Applicants from a wide range of U.S. and non-U.S organizations and institutions are encouraged to respond including academic institutions, not-for-profit and for-profit organizations, foundations, civic groups, and cooperatives.
The 11 winners of the 2013 call received approximately $1,000,000 USD each for boosting their respective project at the nexus of agriculture and energy.

[1] USAID's Grand Challenge Development model is described at: http://www.usaid.gov/grandchallenges/grand-challenges-prizes

Contact: Maria.Weitz@giz.de
For further information see:
http://poweringag.org

International Institute for Applied Systems Analysis (IIASA)

The International Institute for Applied Systems Analysis (IIASA) conducts policyoriented research into problems that are too large or too complex to be solvedby a single country. Problems like climate change that have a global reach and canbe resolved only by international agreement.

Or energy security or population aging,which are national issues with international ramifications for every country. As anindependent research body, IIASA examines such issues and devises strategies forcooperative action unconstrained by political and national self-interest.Every year nearly 300 natural and social scientists, mathematicians,and engineers from over 45 countries research at IIASA. They range from world-renownedscholars to young scientists just embarking on their careers. Together with about1,750 collaborators from across the globe, the make up IIASA's research network.These networks broaden the knowledge and expertise at IIASA and extend the reach ofits work. Such collaboration helps IIASA build bridges between countries through science.

The Risk, Policy and Vulnerability Program aims to better understand the risks to economic, ecological, and social systems arising from global change and to help transform the ways in which societies manage them.The Governance in Transition research theme within RPV program analyzes how governance structures shape decisions and subsequent outcomes by building on and contributing to research on decision-making processes, public acceptance, risk perception, cognitive biases, and cultural perspectives, as well as participatory governance design.

The Governance in Transition research theme contributes to the understanding of transformations in governance frameworks across diverse risk policy areas, including community flood resilience, disaster risk reduction and transfer, ecosystem services, siting controversial infrastructure and facilities, as well as climate change mitigation. It specifically involves the design of participatory governance via stakeholder processes and interactions, including methods of participatory modeling, games, and game theory.Meeting the challenges of climate change, disasters, and social-ecological shifts requires not only technical and economic capabilities but also transitions in the way we govern - toward more adaptive and inclusive approaches.

Thus operationalizing research on governance is more than communicating scientific results to policymakers and analyzing how these results are interpreted and implemented; it also involves working with stakeholders to co-generate actionable knowledge.

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ETH Zurich

The ETH Zurich is one of the leading international universities for technology and the natural sciences. It is well known for its excellent education, ground-breaking fundamental research and for implementing its results directly into practice.

Founded in 1855, ETH Zurich today has more than 18,000 students from over 110 countries, including 3,900 doctoral students. To researchers, it offers an inspiring working environment, to students, a comprehensive education. Twenty-one Nobel Laureates have studied, taught or conducted research at ETH Zurich, underlining the excellent reputation of the university.

In the Human-Environment Systems (HES) group within ETH conducts problem-driven environmental research. Its current focus is on analyzing pathways for creating a sustainable electricity system for Europe and beyond, studying means to mitigate human vulnerability to climate and other natural hazards, and understanding the effects of policies on the use and protection of natural resources. Its mission is to identify those scientific questions that policy makers need answered urgently, and then to answer them, communicating the results clearly and effectively. Its core competencies are in the collection and analysis of data on people's beliefs, attitudes, and decisions, and in the modeling of system behaviors that depend on the interaction of human, engineered, and environmental elements.The HES chair is part of the Institute for Environmental Decisions (IED). The aim of IED is to analyze individual and collective decisions in the context of natural resource utilization and environmental problems.

Furthermore, IED's members aspire to support private and political decision makers who are striving for sustainable decisions while facing a tremendous number of risks and uncertainties.

ETH zürich

HES Human-Environment Systems

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Sunlife, ou le nouveau business solaire

Allani Sunlife Holding SA

Membre de :

Cleantech ALPS Western Switzerland Cleantech Cluster

Dr. Yassine Allani
Président-Fondateur
de Sunlife
Novembre 2014

Chères parties prenantes,
Développer des projets et des solutions innovantes qui créent de l'emploi et qui font évoluer l'économie de manière durable, et ce, grâce à une conception optimale des chaines de valeurs industrielles où la technologie solaire se trouve au centre d'un développement fédérateur et intégrateur – un objectif fondamental sur lequel se fonde l'éthique de notre organisation et qui se doit d'être préservé et pérennisé.

Notre mission

Développement de solution, de plateformes technologiques innovantes et de filières de formation liées à l'énergie solaire appliquées aux collectivités publiques et locales, à l'industrie et à l'écotourisme afin d'apporter des résultats concrets permettant de considérer l'énergie solaire, non seulement comme agent énergétique durable, mais également comme un vecteur de développement social, environnemental et économique. La responsabilité sociale et le développement durable sont totalement intégrés dans notre organisation afin que les solutions innovantes que nous proposons soient « utiles » au sens de la durabilité.

Nos valeurs

Les valeurs qui nous distinguent – l'intégrité, le respect, la transparence, l'écoute, l'adaptabilité – constituent le socle sur lequel se basent toutes nos activités et guident chacun d'entre nous au quotidien dans nos comportements envers nos parties prenantes.

Notre charte éthique au vue de nos activités émergeantes

Le type d'activité mené par Sunlife demande la plus haute exigence en matière d'intégrité et d'éthique. L'accroissement de nos activités dans des pays émergents, la revitalisation de certaines économies, le développement des communautés locales et des acteurs économiques grâce à une technologie propre et durable, impliquent que nous ne pouvons souffrir d'aucun compromis en matière de responsabilité sociale et environnementale. L'éducation et la formation sont au centre de nos activités ; la dimension comportementale étant un pilier pour porter des programmes éducatifs liés aux énergies renouvelables. C'est notamment le cas lorsque nous travaillons avec nos nombreux partenaires publics ou privés pour mener des projets d'envergure qui influenceront les futures générations. Les principes et l'esprit de notre Charte éthique doivent guider les comportements, non seulement de nos dirigeants, mais de tous nos employés et partenaires, dans leurs actions et donner ainsi une direction claire dans les prises de décision opérationnelles et stratégiques.

S.A.T.E.R SOLAR

الشركة الألمانية لتكنولجيات الطاقة المتجدّدة

Société Allemande des Téchnologies d'Energie Renouveable

Etude Conseil Distribution Ingénierie Solutions

Sater-solar, Société Allemande des Technologies d'Energie Renouvelable est une entreprise spécialisée dans la fabrication, la commercialisation et l'installation des systèmes photovoltaïque.

Les activités de SATER-SOLAR sont diverses:

- **Electrification solaire (Site isolé et connecté au réseau)**
- **Centrale photovoltaïque**
- **Pompage solaire**
- **Balisage maritime**
- **Eclairage public**
- **Télégestion**
- **Étude et conception des systèmes photovoltaïques.**
- **Assistance technique pour la construction d'installations photovoltaïques.**
- **Planification avec un excellent savoir-faire.**
- **Service aprés vente fiable et rapide.**

Etude, Conception & Installation Système photovoltaïque

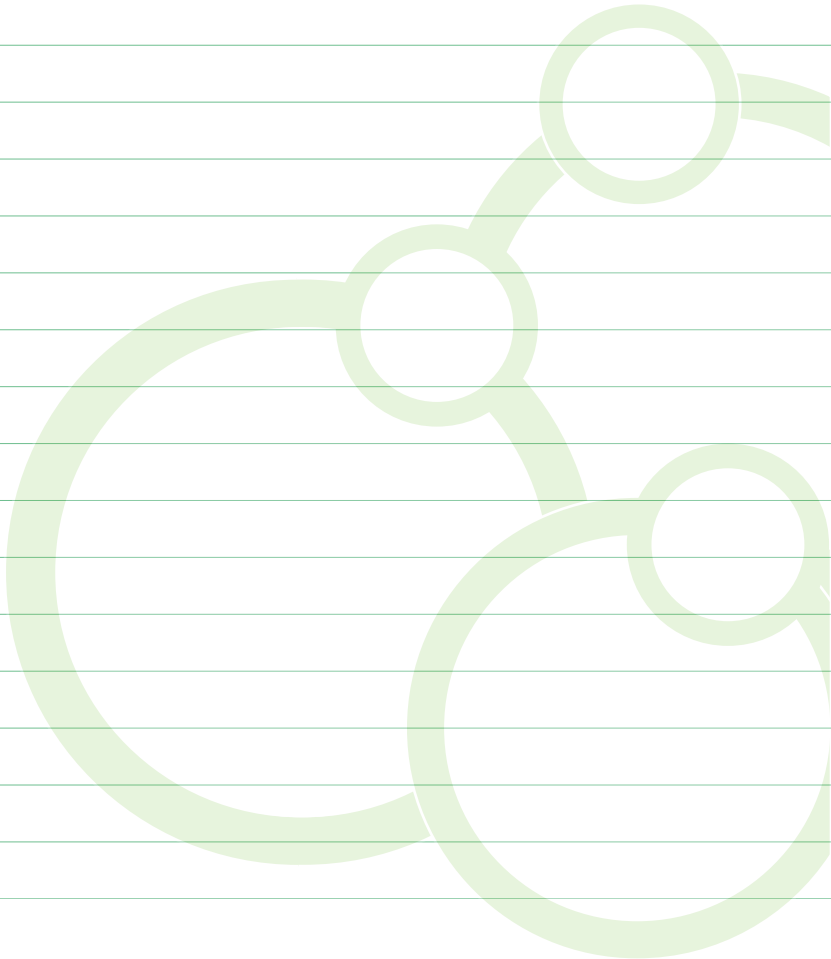
Connecté Réseau
Industriel

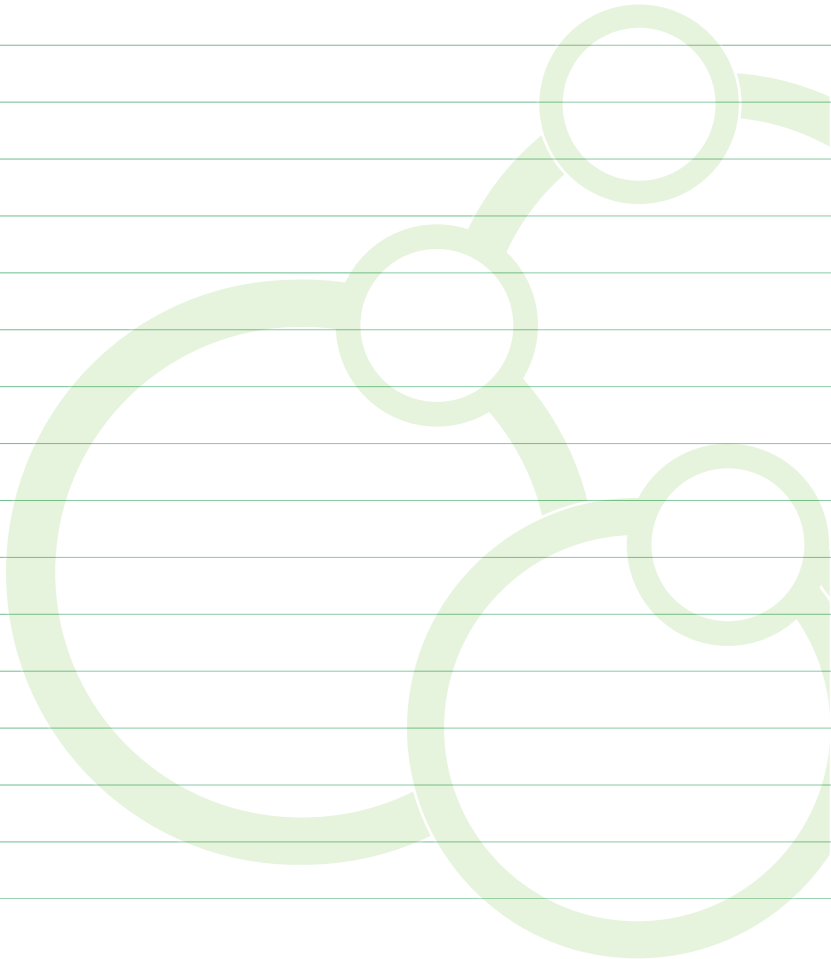
Pompage & Drainage Solaire

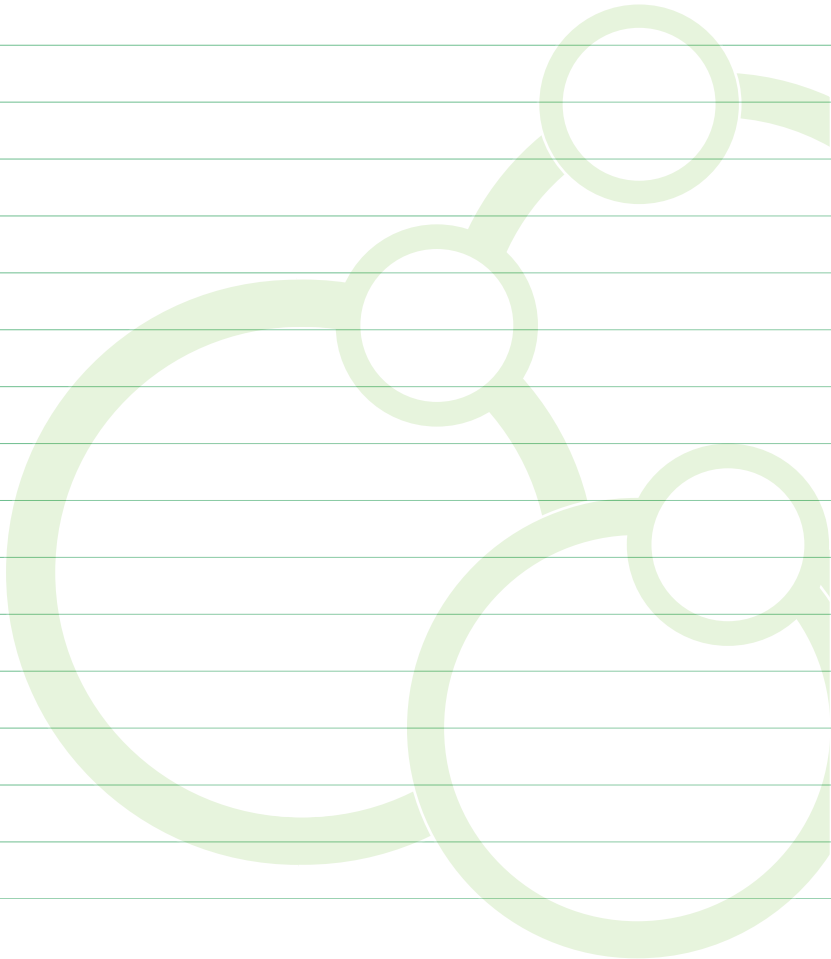
Site isolé

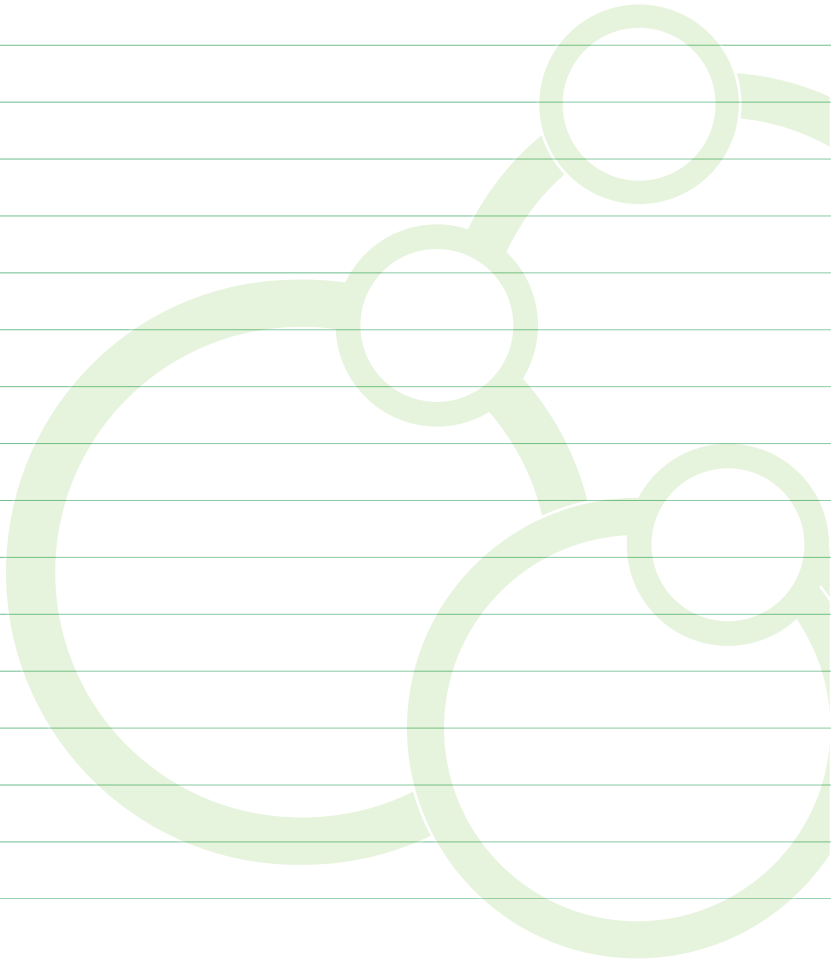
Adresse : Av. Majida Boulila Imm. Zaphir, 2ème Etage App N° 25 Sfax - Tunisie

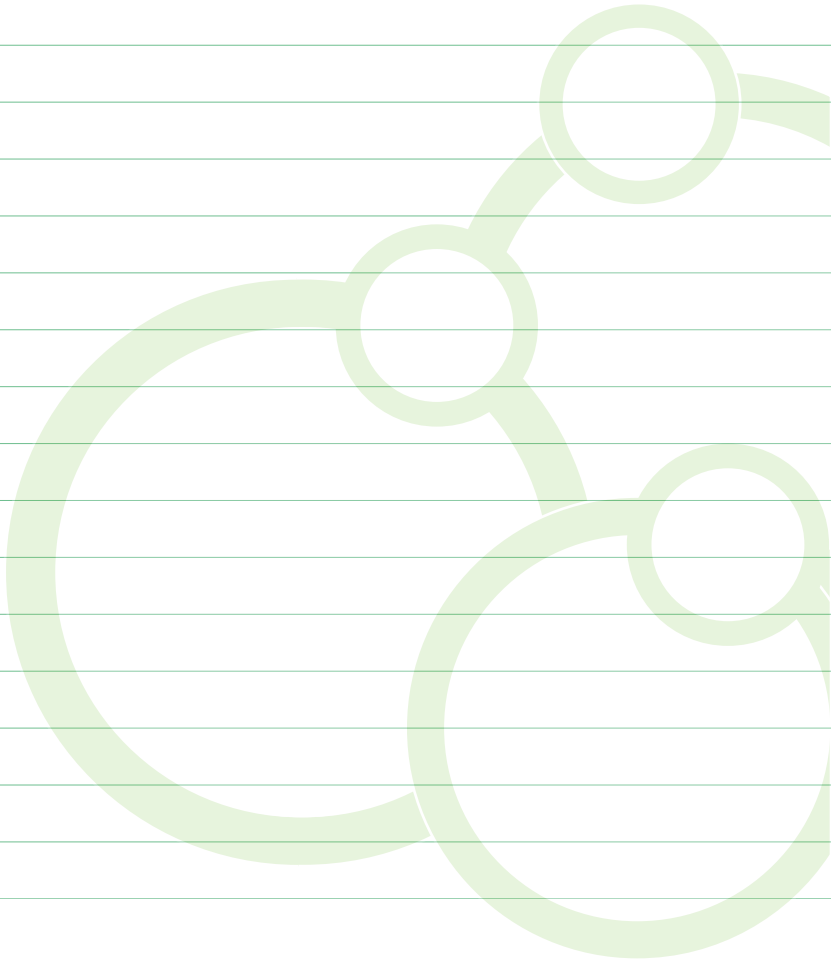
Tél.: 74 416 102 - Fax : 74 416 104 - E-mail: info@sater-solar.com - Site Web : www.sater-solar.com

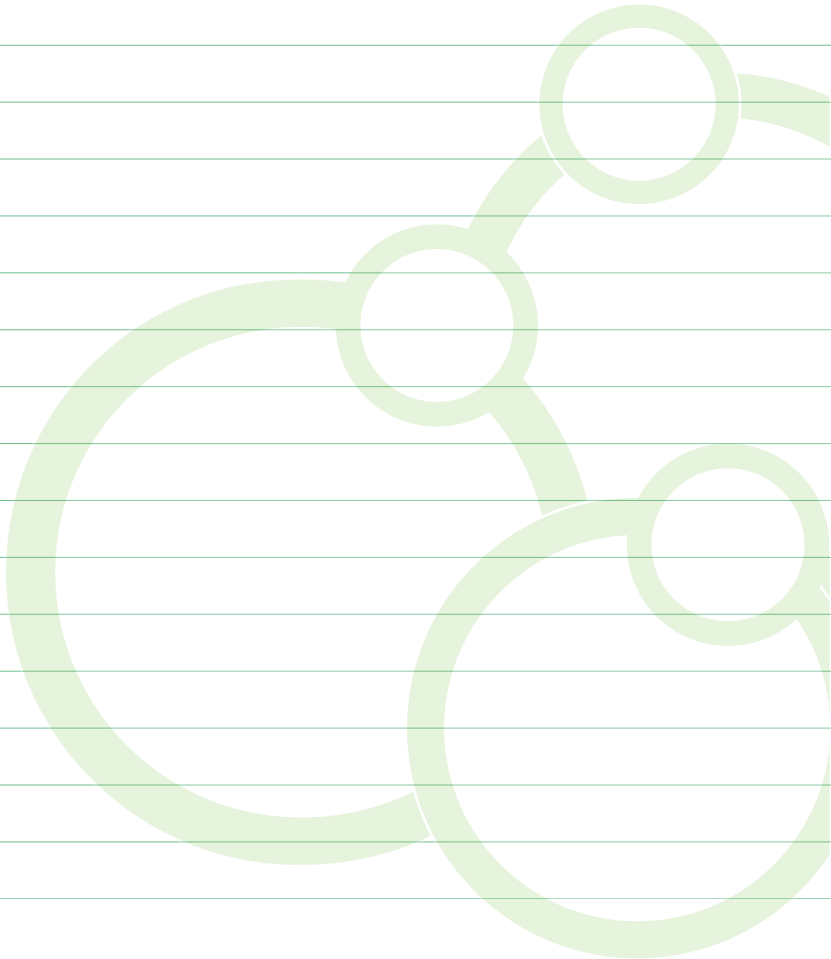












La Direction Générale de l'Aménagement et de la Conservation des Terres Agricoles (DG ACTA)

Les enjeux et opportunites des technologies d'energie renouvelable dans l'exploitations des eaux des lacs collinaires et des barrages collinaires en tunisie

Stratégie ACTA

La stratégie ACTA, a pour objectif un système de production agricole durable basé sur une gestion intégrée des ressources naturelles et une gouvernance locale induite par une décentralisation réelle.

Centrée sur une implication effective des agriculteurs et le renforcement de leurs capacités de gestion et d'exploitation rationnelle des ressources naturelles, cette stratégie devrait contribuer :

- A la valorisation des eaux mobilisées,
- A l'amélioration des conditions de vie des exploitants
- Au développement durable de l'espace rural tout en réhabilitant les services des écosystèmes et leur résilience au changement climatique.

Les lacs/barrages collinaires

Exploitation d'un lac

Les lacs collinaires et les barrages collinaires sont des petits barrages en terre aménagés par l'homme dans des environnements fragiles et à faible activité économique.

Ils se situent au niveau des dépressions entre les collines, ce qui permet la collecte de l'eau de pluie et des ruissellements. Leur implantation et leur promotion sont un choix stratégique intéressant permettant la mobilisation des ressources hydrauliques naturelles afin de répondre aux besoins en eau sans cesse croissants aussi bien dans l'agriculture familiale rurale, recharge des nappes que la protection des infrastructures.

Objectifs et enjeux de l'utilisation des énergies renouvelables pour la valorisation agricoles des lacs collinaires et barrages collinaires

- Des gains d'opportunités à l'échelle nationale et locale pour l'intensification de l'exploitation des eaux mobilisées
- Acquérir de nouvelles connaissances et aptitudes pour faire face à la rareté et à la faible valorisation des eaux
- Une amélioration de savoir faire des agriculteurs et une augmenter de leurs revenues
- Améliorer les performances des Groupements de Développement Agricole (GDA) et la gestion participative
- Une intégration dans les réseaux internationaux de partenariat pour l'énergie renouvelable
- Une prise de conscience du rôle des énergies renouvelables dans les stratégies énergétiques futures pour un développement durable
- Promotion de la recherche-développement centrés sur l'utilisation de l'énergie renouvelable pour une gestion intégrée des ressources naturelles et un développement rural durable
- Une intégration dans les nouveaux mécanismes de financement des énergies renouvelables et du développement Propre

Ministry of Agriculture

DG ACTA

Direction Générale de l'Aménagement et de la Conservation des Terres Agricoles
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Email : bo.dgacta@iresa.agrinet.tn

Institution de la Recherche et de l'Enseignement Supérieur Agricoles (IRESA)

Missions and Objectives

The institution for Agricultural Research and Higher Education was established in 1990. It is a public administrative institution with the civil personality and financial autonomy. It is under the supervision of "The Ministry of Agriculture". The Institution for Agricultural Research and Higher Education "IRESA" is in charge of:

- Promoting agricultural research in Tunisia through the coordination of research (6 Research Institutes, 4 regional centers and 2 regional research clusters and more than 20 experimental stations) and higher education (11 institutions) in this field;
- Disseminating agricultural knowledge;
- Setting, funding and monitoring national research programs;
- Promoting cooperation between Tunisian and foreign researchers;
- Coordinating and evaluating of the national programs.

The main objectives are covering natural resources management, plant and animal science, emerging diseases, sustainability of agricultural production, food security and food safety, horticulture, aquaculture and fisheries.

Institutions

IRESA is currently running 33 laboratories and 12 research units, gathering 800 scientists and 5500 students

1- Etablissements d'Enseignement Supérieur Agricoles		
Institut National Agronomique de Tunis		inat@iresa.agrinet.tn
Ecole Supérieure d'Agriculture de Mograne	www.esamograne.agrinet.tn	esamog@iresa.agrinet.tn
Ecole Supérieure d'Agriculture de Mateur	www.esamateur.agrinet.tn	esamat@iresa.agrinet.tn
Ecole Supérieure des Industries Alimentaires de Tunis	www.esiat.agrinet.tn	esiat@iresa.agrinet.tn
Institut Supérieur de Pêche et d'Aquaculture de Bizerte		ispabizerte@iresa.agrinet.tn
Institut Supérieur des Etudes Préparatoires en Biologie et Géologie à Soukra	www.isepbgsoukra.agrinet.tn	isepbg.soukra@iresa.agrinet.tn
Ecole Nationale de Médecine Vétérinaire de Sidi Thabet		enmvt@iresa.agrinet.tn
Ecole Supérieure des Ingénieurs de l'Equipement Rural de Medjez El Bab	www.esier.agrinet.tn	esiermedjez@iresa.agrinet.tn
Ecole Supérieure d'Agriculture du Kef	www.esakef.agrinet.tn	esak@iresa.agrinet.tn
Institut Sylvo-Pastoral de Tabarka	www.isptabarka.agrinet.tn	isptabarka@iresa.agrinet.tn
Institut Supérieur Agronomique de Chott Mériem	www.isa-cm.agrinet.tn	isa.chottmeriem@iresa.agrinet.tn
2- Instituts de Recherche		
Institut National de la Recherche Agronomique de Tunisie	www.inrat.agrinet.tn	inrat@iresa.agrinet.tn
Institut National de Recherche en Génie Rural, Eaux et Forêts	www.inrgref.agrinet.tn	inrgref@iresa.agrinet.tn
Institut de l'Olivier	www.iosfax.agrinet.tn	iosfax@iresa.agrinet.tn
Institut de la Recherche Vétérinaire de Tunisie		irvtunis@iresa.agrinet.tn
Institut des Régions Arides	www.ira.agrinet.tn	ira.med@ira.rnrt.tn
Institut National des Sciences et de Technologie de la Mer	www.instm.agrinet.tn	saida@instm.rnrt.tn
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Centre Régional de Recherche en Horticulture et Agriculture Biologique de Chott Mariem à Sousse		crrhab@iresa.agrinet.tn
Centre Régional des Recherche Agricoles du Centre Ouest à Sidi Bouzid		CRRA.sidibouzid@iresa.agrinet.tn
Centre Régional des Recherches en Grandes Cultures à Béja		pbeja@iresa.agrinet.tn
Pôle Régional de Recherche et de Développement Agricoles du Nord Est à Mornag		
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UNIVERSITY NETWORK (DUN) e.V

Ministry of Agriculture

RÉPUBLIQUE TUNISIENNE
MESRS-TIC

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

IIASA International Institute for Applied Systems Analysis

APIA

VOLTA PV

afd AGENCE FRANÇAISE DE DÉVELOPPEMENT

IRESA Institution de la Recherche et de l'Enseignement Supérieur Agricoles

ANME

DG ACTA

S.A.T.E.R SOLAR
Société Allemande des Téchnologies d'Energie Renouvelable

Allani Sunlife Holding SA

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