



# RETO-DOSSO – Renewable energies to improve living conditions in Niger

## CLIENT II – International Partnerships for Sustainable Innovation

Even though there has been some improvement in the global electricity supply over the past years, more than a billion people still have no access to electricity. The majority of these people live in sub-Saharan Africa, where food and water security is often not a given. A sustainable economy needs to be established in rural areas of West African countries to ensure that basic standards of living are met and to guarantee the well-being of the people who live there. The RETO-DOSSO research project aims to create lasting and sustainable means of subsistence in rural areas; establishing these essential means will also pave the way for the founding of small and microenterprises.

### The Challenges

The RETO-DOSSO research project aims to help establish sustainable means of subsistence in rural areas of Niger by establishing a foundation on which residents can earn a livelihood, thus paving the way for rural business activities. To do so, the researchers plan to use electricity generated from renewable energy sources to secure basic needs, such as food and water. Excess electricity from solar stand-alone systems will strengthen the rural economy by creating simple yet innovative business ideas as local sources of income.

### Technical work goals

Drawing on the experience, they gathered in various prior research projects in this region, the project partners will implement the following steps:

1. Improving access to clean electricity in rural areas of the country,
2. Identifying critical usage of generated electricity,
3. Providing clean water and ensuring the automatic pumping, processing and distribution thereof,
4. Increasing agricultural productivity through irrigation systems,
5. Developing a business model; identifying further economic marketing opportunities for electricity (for example, charging stations for batteries and mobile devices, cold storage for agricultural products, the use of electric mopeds as taxis, and more),
6. Social compatibility study: the gathering, evaluation, storage and use of data (for example weather, water and climate data, plant operation data, socio-economic data, etc.)



School building for the construction of pilot systems.

In future, Niger and other countries in the region known for their high level of sun radiation could play a key role in the generation of green hydrogen. Abdou Moumouni University of Niamey (UAM) is to become the leading research location for future energy research in Niger, which is why a hybrid energy laboratory is being installed, along with a research and demonstration plant to generate hydrogen.

Many people in Niger stay within the education system until finishing secondary school. These schools are usually located in the village centres, and many residents keep in close contact with their children's school. The research project therefore plans to install a solar plant at a secondary school in a rural area of the Dosso region, where it will supply the energy centre and school with electricity. The renewable energy will also be used to operate a groundwater pump, which will be combined with new irrigation concepts to promote local agriculture. Village residents will furthermore be

able to obtain electricity that they can then use in their business activities and which will also allow them to develop new business opportunities. At school, pupils will gain an awareness of concepts to generate sustainable and climate-friendly energy and will spread this awareness within their families.



There is still a water shortage in sub-Saharan Africa.

Once this project has been successfully implemented, it will contribute to the UN's Sustainable Development Goals (1. No Poverty, 2. Zero Hunger, 4. Quality Education, 6. Clean Water and Sanitation, 7. Affordable and Clean Energy, 13. Climate Action).

**Funding initiative**

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