

CEWAG – Clean Energy and Water for Gambia



Joint Gambian-German research project helps locals live healthily and sustainably

The German Federal Ministry of Education and Research is supporting research into possible strategies for a sustainable energy and water supply in the Gambia: Together, scientists from Germany and West Africa are investigating the potential for self-cleaning solar installations as part of the CEWAG project. The aim of the research project is to use solar power to run decentralized water treatment plants that will improve the locals' quality of life and enable economic growth. In addition, the development programme will create a training scheme to provide young people in the Gambia with new prospects.

A reliable energy supply is a necessary condition for economic growth in the Gambia. At the moment though, the power supply in this West African republic is very unreliable. However, developing the local energy supply system with technologies for generating renewable energy will provide an opportunity for a constant and sustainable energy supply. That is precisely what the Gambian-German research initiative Clean Water and Energy for Gambia (CEWAG), with funding from the German Federal Ministry of Education and Research (BMBF), aims to deliver.

The project's main aim is to assess what strategies for providing power using renewable energy can viably be implemented in the Gambia. To this end, the University of The Gambia (UTG) is analysing the potential for solar power in the Gambia together with the West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) and the Karlsruhe Institute of Technology (KIT). This is being done through two avenues: Firstly, the initiative is examining what existing conditions there are for a renewable energy supply to be set up in

the Gambia. Secondly, CEWAG is conducting preliminary studies to prepare two application-oriented pilot projects. Examples of best practice from these will be used as blueprints for follow-up projects and pilot facilities.

Preliminary study 1: Self-cleaning surfaces for solar installations save on arduous cleaning processes

The scientists are faced with a challenge: In Germany, installed solar panels are naturally cleaned by snow and rain. In dry regions like West Africa, by contrast, the surfaces of photovoltaic panels often become soiled very quickly. After just four weeks of no rain, a complete cover of dust can form on the panels and severely reduce their efficiency. The Gambia is a very arid country, especially during the winter – a situation made worse by the dry north-east wind from the Sahara. This means that solar panels here have to be cleaned regularly and thoroughly.

Researchers see potential for development here. So, one of the preliminary studies is on self-cleaning surfaces for solar panels in photovoltaic plants. This should prevent loss of

efficiency. The findings made relating to the efficiency and durability of the coatings will then find their way into the development of new module surfaces. The photovoltaic plants developed based on these findings would be specially adapted to the climatic conditions in the Gambia and could help to provide the population with a reliable and sustainable electricity supply.

Preliminary study 2: Clean water from clean energy

In contrast, the second preliminary study explores how to use the electricity produced, or more precisely, the possibility of running decentralized water treatment plants using solar power. The first step needed for this is to evaluate the geographic, climatic, and technical conditions. In addition, the composition of the water in the Gambia needs to be examined. A concept for pilot water treatment plants will then be created based on all these analyses.

Training scheme for young Gambians

Finally, CEWAG is also supporting the training of specialists at the University of The Gambia. The aim is to give young people good prospects, particularly in the field of renewable energy. To this end, the training scheme provides people with qualifications for the installation, operation, and maintenance of photovoltaic plants. These new career opportunities should help to curb the emigration of people escaping poverty. In summary, the research project is using these methods to enhance the quality of life of the Gambian population and provide effective capacity building aid in the Gambia.

Funding initiative

CEWAG: Clean Energy and Water for Gambia I – Feasibility and Network Development

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