

INTRODUCTION

A lack of access to sufficient and sustainable energy supply affects much of the population in many Southern African countries like Botswana, Malawi, Mozambique, South Africa, Zambia and Zimbabwe, especially in rural areas. A majority of the population still depends on firewood and charcoal for cooking and hot water supply, which poses serious threats to economy, environment and health. The sector of renewable energies (RE) is regarded as one of the most promising sectors in the Southern African region and plays a key role when talking about sustainable economic growth and poverty alleviation. Therefore, the increased use of renewable energies and the implementation of renewable energy technologies (RET) are seen as central vehicles to meet the increasing energy demands of a growing population and to provide sustainable energy access to rural areas. However, despite the enabling climatic factors in the target region, it is evident that RET are still facing many barriers that include lack of technical capacity and experienced professional workforce. As a consequence, the existing potential for the use of renewable energy sources and technologies is still undermined in the face of a growing demand for qualified manpower in the emerging renewable energy markets in the defined region.

A considerable need for energy engineering innovators and entrepreneurs in the sector of RET is therefore, necessary. In this context, education, more precisely higher education, is regarded as a key factor and pre-requisite for the promotion of a sustainable development of the Southern African countries and universities. For this reason, access to scientifically based and applied knowledge is a central factor, and higher education institutions are key actors to combine the needs of the labour market with formal education.

The Academic Initiative for Renewables (AIR) project is, therefore, a starting point as an initiative to develop capacity in RET. The project is taking a holistic view on higher education while focusing on the topic of renewable energies.

Through an improved and more practice-oriented academic education in RET and with funding from the German Exchange Programme (DAAD) the Technische Hochschule Ingolstadt (THI) of Ingolstadt in Germany together with the Centre for Water Sanitation Health and Appropriate Technology Development (WASHTED) of the University of Malawi the Nelson Mandela Metropolitan University, University of Zimbabwe, University of Zambia, Botswana International University of Science and Technology, Stellenbosch University of South Africa, and Eduardo Mondlane University of Mozambique aims at addressing the specific demands of the local labour markets and contribute to the economic development of the Southern African countries. At the same time, the capacities and labour-market orientation of the participating partner universities in the African countries will be fostered.

Furthermore, a higher education network, including industry players, for RET linking Southern African countries and Germany will be established. Through these approaches, the German university will be enabled to increase its expertise in development cooperation and at the same time, the ownership of the African institutions and the empowerment of students as the future employees and decision-makers will be supported.

The following project goals (outcomes) and sub-goals (project outputs) arise from the programme goals and are expanded as follows:

TProject Goals (outcomes):

1. Partner universities in Southern Africa should be able to offer labour market-relevant tailor-made study courses related to renewable energy technologies that correspond to the state of science
2. Technische Hochschule Ingolstadt gains expertise in the field of development cooperation
3. A higher education network, including industrial stakeholders, in renewable energy technologies linking Southern African countries and Germany is established



Based on these project goals, the following **sub-goals (= project outputs)** are defined:

- **Sub-goal 1:** To jointly develop labour market-relevant tailor-made curricula, and enrich existing teaching modules, for undergraduate study courses in RET that correspond to the state of science
- **Sub-goal 2:** To jointly develop a labour market-relevant tailor-made curricula for an international master's programme in RE that corresponds to the state of science
- **Sub-goal 3:** To qualify teaching staff at partner universities professionally (technically) and didactically
- **Sub-goal 4:** To extend and consolidate existing individual contacts between the participating partner universities and in particular to the industry partners
- **Sub-goal 5:** To set up a professional results dissemination and project management system including coordination, monitoring and documentation