

Vocational Teachers Training Program for Renewable Energies in Tanzania (Version 1.2)

1 Training Goals

1.1 The aim of the Vocational Teacher Training Program for Renewable Energies in Tanzania (VTTP-RE) is the continuous and high-quality training of teachers / instructors / trainers for craftsmen and technicians for renewable energies in the following areas:

1.1.1 Electrical power generation with solar installations,

1.1.2 Electrical power generation with small hydropower

1.1.3 Electrical power generation with small wind power,

1.1.4 Hot water generation with solar energy

1.1.5 Production of biogas, use of biogas

1.1.6 Saving biomass when cooking with stoves.

1.2 The training should be so comprehensive that the future teachers / trainers can independently build up and lead such a training course anywhere in Tanzania.

1.3 The training course is intended to discover and promote appropriate abilities of the trainees.

1.4 There are 15 apprenticeships offered annually, hoping that of these 15 trainees at least 10 will continue their training and pass the exam. The goal to train successfully 10 teachers per year is taken over from the study commissioned by NSI that TAREA has created. If the rate of dropouts is higher, the number of initial training places must be increased.

1.5 The further results of the TAREA study are to be taken into account in the design of the training program. It contains, for example, substantive suggestions and a large number of training centers, which can be gained as future partners. (Available from Markus Weidemann.)

2 Organization

2.1.1 The resources to educate teachers for Renewable Energies are available in Tanzania. Currently there is a lack of interconnection and organization of these resources for the objectives of this program. There is no need, to build up a new training centre. But a coordination-office is needed. It is responsible to organize and coordinate the program for training and education of teachers for renewable energies. The entire training can be realized together with partners, who have the respective resources and are ready to cooperate.

2.1.2 The practical training will take place in companies, which build up, install, maintain and repair RE-systems in Tanzania. They work together with the coordination-office in a public-private-partnership.

2.1.3 The theoretical knowledge will be taught in short term courses, which can take place in existing vocational training centres or similar institutions.

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2.2 The following partners have already been consulted and have declared their willingness to cooperate:

2.2.1 Vocational Education and Training Authority (VETA)

2.2.2 Vocational Teachers Training College in Morogoro (VTTC belongs to VETA)

2.2.3 Mafinga Lutheran Vocational Training Center (MLVTC)

2.2.4 Other Vocational Training Centers with related training programs for the training of future teachers / trainers and the later employment of the teachers trained by us, for example in Hai and Usa River.

2.2.5 Many different private craft and industrial enterprises employing craftsmen in the field of renewable energies. These companies show a fundamental interest, to take over the practical training of trainees similar to the dual system in Germany. (For example, Reni International Dar es Salaam or Mobisol in Arusha.) The details of this training has to be negotiated but the interest of these companies is one of the basics of this proposal.

2.2.6 ELCT Department for Planning and Development

2.2.7 TAREA Tanzania Renewable Energy Association

2.3 The project needs an umbrella-organization, which is well integrated in the Tanzanian Vocational Training, to give support to the new office. After the start-phase of some years this umbrella-organization takes over the responsibility for the complete project.

2.4 The Coordination Office organizes and accompanies the theoretical, practical and pedagogic training of the respective trainees in general and one by one. It shall perform the following tasks:

2.4.1 Clarify the cooperation with the respective partners in detail, if necessary, detailed negotiations and agreements on cooperation. Partners are, for example, organizations, companies and individuals who work as teachers in the program.

2.4.2 Finding further cooperation partners and agreeing on future cooperation programme.

2.4.3 Creation of an IT infrastructure in which the respective teaching contents, courses and the organization of the program are made accessible via the Internet, separated by publicly available information and closed personal areas (intranet), which have different access rights:

2.4.3.1 students / apprentices / trainees

2.4.3.2 Trainees in the examination phase

2.4.3.3. Teachers, who have completed their vocational training. They will receive lifelong access to the teaching materials for a small yearly fee.

2.4.3.4 Teachers in this training program

2.4.3.5 Organization and administration

The internet based IT-system gives access to the following content:

2.4.3. Teaching material and contents

2.4.4 Promotion material for the training program

2.4.5 Forms for applications and selection procedures for trainees

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2.4.6 Establishment and organization of an individual training plan for each individual trainee, based on the skills and knowledge he/she already has, and on the basis of the objective he/she wishes to achieve.

2.4.7 Accompanying and monitoring and documenting the individual training phases for each individual trainee. Documentation of absences and failures.

2.4.8 Organize and carry out the theoretical courses within the training plan.

2.4.9 Dialogue and mutual quality control with the respective partners, traders, handcraft- and industry-companies.

2.4.10 Entering feedback from the partners about the achievements of the trainees into the system and permanent documentation.

2.4.11 Entering feedback from the trainees about the performance of the training partners into the system and permanent documentation.

2.4.12 Establish examination procedures and quality standards for the examinations in cooperation with the governmental organizations.

2.4.13 Carry out and document examinations accordingly.

2.4.14 Provide examination-results and document them permanently

2.4.15 Issue and document examination certificates

2.4.16 Looking for jobs and connect to successful graduates.

2.4.17 Prepare teaching materials for the theoretical classes and provide them with update information and, if necessary, adapt to new developments for the teachers and trainees.

2.4.18 The cost of registration, training, organization and examinations shall be covered by appropriate fees, which shall be paid by the trainees. The revenue and expenditure on the training program must be duly booked and documented.

2.5 The Coordination Office is closely linked to the umbrella organization and cooperates in the first years with the European partners.

3 Curriculum:

3.1 Base of the Teacher Training Program is the curriculum for Renewable Energies, which was developed in cooperation with TAREA and the Mafinga Lutheran Vocational Training Center (MLVTC) in Mafinga and recognized by VETA.

3.2 Since this curriculum is very comprehensive, only parts of this curriculum can be taught and tested for a complete training in this branch. This results in a state-approved conclusion of this sub-area of renewable energy generation. At VETA, there are already deliberations in this direction.

4 Cooperation with VETA

4.1 Teacher training takes place in cooperation with VETA so that the training of our teachers is recognized by the government, following the state guidelines.

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4.2 Educational training of the teachers / trainers takes place at the Vocational Teachers Training College in Morogoro by the instructors there.

4.3 The theoretical training in individual technical areas e.g. fundamental skills in electricity can also be carried out at VTTC in Morogoro. Here the program has to examine which already existing courses of the VETA training match the RE curriculum.

5 Cooperation with crafts and industrial enterprises

5.1 The technical training is practice-oriented and reduces theoretical units to the absolutely necessary.

5.2 The training is based on the market situation in Tanzania and not on European standards.

6 Cooperation with a Tanzanian NGO

6.1 The implementation and organization of the work of the Coordination Office should be accompanied by a local partner, preferably a Tanzanian NGO with similar objectives as NSI.

7 Personnel Requirements

7.1 The trainees fulfil the following minimum entrance requirements: Form 6 or higher,

7.2 15 training places are to be made available per year. The duration of the apprenticeship is between 2 and 4 years depending on the individual trainee. Therefore, approximately 45 training places have to be organized and accompanied.

7.3 Organization and support should be handled by a small team of 4 persons (head, 2 employees with their own areas of responsibility, team assistant). In addition, there are costs for the central and complex IT system, which in the first years certainly still requires intensive monitoring.

8 Financing

8.1 The Coordination Office is initially financed by organisations in Europe.

8.2 The permanent continuation of the program must be covered by school fees (training costs). As fall back the Tanzanian umbrella-organization has to cover remaining costs. A permanent financing by European partners is not possible

8.3 The handcraft-partners involved in the trade and industry do not receive any grants for the training. For the agreed period, they receive the workforce of our trainees and pay them an "apprentice salary". They expect profit also from direct exchange and contact to the trainees and therefore future graduates and possible employees.

8.4 Whether the teacher training program is attractive enough to attract enough trainees or whether it needs to be supported by training grants cannot be assessed at present. A financial support is not planned for the apprentices