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Travel Report

Visit to Mozambique from February 29th to March 8th 2008

1. Introduction

In a so-called Professorium of the Fakultät für Bauingenieur- und Vermessungswesen (Faculty BV) of the Technische Universität München (TUM) held on May 25th 2005 C. Rapp encouraged the faculty to support know-how transfer to developing countries. A general compliance of the professors was found and C. Rapp was then put into charge of initiating cooperation with universities in such countries. The so-called "Fakultätsplattform Entwicklungshilfe" (FPEH) was subsequently founded by C. Rapp and J. von Grabe. The initiative comprises the whole field of infrastructure, not only being of great importance to the development of a country, but also fully covered by the Faculty BV.

First steps were to identify potential partners and existing structures. Through Dr. A. Berg, member of the German Parliament, the contact to the Consul General of the Republic of Mozambique and chairman of the Deutsch-Mosambikanische Gesellschaft e.V. (DMG), S. Lingel, was established. While on state visit to Germany, the Minister for Science and Technology of the Republic of Mozambique, Prof. Dr. V. Massingue, was introduced to Mr. Rapp and Mr. von Grabe by Mr. Lingel on November 3rd 2007 in Stuttgart. The concept of the FPEH was presented to the Minister and a consensus with the plans of the Ministério da Ciência e Tecnologia (MCT) was found. The Minister invited C. Rapp and J. von Grabe to Mozambique to get in contact with the responsible persons and to get a first impression of the country and the level of education.

The invitation was gratefully accepted so that C. Rapp and J. von Grabe travelled to Mozambique from February 29th to March 8th. Travel expenses were generously supported by the DMG and the Faculty BV of the TUM.

S. Gampfer and M. Dobmaier, scientific assistants at the Faculty of Architecture of the TUM, who stayed in Johannesburg at the end of February,

accompanied the FPEH to several meetings in Maputo, aiming to figure out possible contributions of the Faculty of Architecture.

2. Visit of the “Fakultätsplattform Entwicklungshilfe” to Mozambique

The meetings and their outcomes are briefly sketched in the following. Besides the official appointments informal meetings with German NGOs were attended, but will not be discussed in this context.

March 3rd, meeting at the MCT

Prof. Dr. L. Francisco, Dr. E. Chonguana, Dr. P. Fontes, C. Rapp, J. von Grabe, S. Gampfer, M. Dobmeier

The meeting started with a short introduction of the FPEH, its initiators, its aims and the reason for the visit to Mozambique at this stage. Based on this meetings with responsible people and visits of organizations were arranged.

In the following, the Deputy in charge, Prof. Dr. L. Francisco pointed out that Mozambique suffers from a big lack of specialists, especially in the field of infrastructure. There exists an imbalance between training possibilities and output of graduates: Even though engineering holds about 20% of the training opportunities the number of graduates is relatively low, compared to social sciences e.g.

There is a great demand of engineers in the field of hydraulic- and energy engineering that induced the Ministry to start an ambitious human resources development plan. With an outcome of about ten students per year, Mozambique’s sole faculty of engineering, which belongs to the Universidade Eduardo Mondlane (UEM), cannot satisfy the countries needs. Higher qualification programs, namely Ph.D. and M.Sc. studies have just been (energy engineering) or are about to be established (hydraulic engineering). Lecturers from abroad are needed to support in these fields. For this reason, there is a large interest on Mozambican side to establish cooperation. Additionally the Ministry tries to select candidates for respective programs in industry countries and finance scholarships.

The FPEH suggested starting cooperation by sending lecturers from the Faculty BV to the UEM to support in carrying out master courses. However, courses would have to take place during German university break as most of the scientific assistants in Germany have to hold lectures during the semester. Possibly, if funds are raised at some stage for these activities, more flexibility can be achieved.

It was agreed on the fact that any fundraising in Germany has to be preceded by an official cooperation of the UEM and/or the MCT with the TUM.



Fig. 1 Ministry of Science and Technology

March 4th, meeting with Mr. Saba at Matola Rio

A project which was partly financed by the DMG and supervised by Mr. Saba was visited in Matola Rio. It comprises a skill centre for poor single women who have to care for themselves and their children. They are trained in pottery, sewing and growing medical plants. The products are then sold to finance the trainers. Mr. Saba explained possible plans to expand the project in the future. There is an adjacent site that could be developed as an extension.



Fig. 2 Educational Center Matola Rio

March 4th, visit of Moamba, orphanage and skill centre

The orphanage and the skill centre in Moamba, a district capital, was visited. This project has also been supported by the DMG over the past years. The visit was not only interesting in terms of this project but offered the only possibility during the stay in Mozambique to gather impressions of the infrastructure outside Maputo.



Fig. 3 Professional School Moamba

March 4th, meeting at Consultec, engineering consultant

Prof. Dr. A. Carmo Vaz, C. Rapp, J. Von Grabe, S. Gampfer
The administrator of Consultec, Prof. Dr. A. Carmo Vaz, member of the scientific council and advisor of the government, is in charge of the initiation of a master course on hydraulic engineering. The Universidade Técnica de Lisboa has been asked for assistance so far. Collaboration, substantially

through the deployment of specialized lecturers, with the TUM is desired independently of other prospects. Exchange of students writing their Master- or Ph.D. theses shall be initiated. The study plan, containing modules of three weeks full time lectures, is created for winning lecturers from abroad. Even the exams will be held in absence of the lecturers and send for correction to them. The curriculum is not yet specified. It will strongly depend on the lecturers involved, whereas two paths are planned:

- Urban water management,
- Water resources management, hydraulic engineering, hydrology

Concerning building-related energy questions (building physics, building climate), Prof. Dr. Carmo Vaz puts emphasis on the fact that Mozambique does not have to deal with the design of heating but of cooling. Buildings have to be designed thermally effective in order to save cooling energy and to achieve acceptable summer conditions by using passive means. So far, there are no experts for sustainable energy, solar energy design and, in general, thermal performance of buildings, in Mozambique. Even though there is no master program planned at this stage, short courses which could be attended by students as well as by professionals would be of interest.

Generally, Prof. Dr. Carmo Vaz considers it to be more effective to have foreign lecturers teaching in Mozambique rather than to have Mozambican students being sent to other countries as by the latter less students can be taught. He further explained that chairs at the UEM are structured similarly to the chairs at the TUM: Professors are lecturers as well as researchers and are supported by assistants. There are at least three levels of lecturers, i.e. Professors, Senior Lecturers and Junior Lecturers. Formally, it is not a problem for foreign lecturers to teach without a Ph.D. degree. Only a few Mozambican lecturers have a Ph.D. degree since there is a great demand on the market, engineers are commonly employed by the industry.

March 5th, meeting at the Faculty of Engineering of the Universidade Eduardo Mondlane

Prof. Dr. J. Nhambiu, Dr. C. Lucas, C. Rapp, J. von Grabe, S. Gampfer

The Dean of the Faculty of Engineering, Prof. Dr. J. Nhambiu, and the Deputy Dean for Research and Extension of the Faculty of Engineering, Dr. C. Lucas, underlined the Faculty's interest in cooperating in the above topics. Collaboration was also asked for in the fields of energy, mainly regenerative energy, and low cost construction. Additionally, material science was mentioned to be a field of interest. The facilities of the Faculty, lecture rooms and laboratories were shown by Dr. C. Lucas.

It was mentioned by the FPEH that some kind of official contract between the universities would help in acquiring financial support for projects through German foundations, such as DAAD (German Academic Exchange Service) or DFG (German Research Foundation). Therefore it was jointly decided that a letter of intent, comprising the possible fields of collaboration of the faculties and written by Dr. C. Lucas, shall lift the ambitions on an official level.



Fig. 4 Laboratory for Hydraulics

March 6th, Faculty of Engineering

Prof. Dr. Carmo Vaz, C. Rapp, J. von Grabe

Invited by Prof. Carmo Vaz, the FPEH took part in a lecture on hydraulics, held by himself at the Faculty of Engineering. Further impressions of the education system of the UEM could be gained.



Fig. 5 Lecture in Hydraulic Engineering

March 6th, meeting at the Rectorate of the Universidade Eduardo Mondlane

Prof. Dr. J. Couto, Dr. A. Bernardo, Dr. C. Lucas, P. Fontes, C. Rapp, J. Von Grabe, S. Gampfer

According to the findings with Prof. Dr. Carmo Vaz and Dr. Lucas, the Director of the International Relations Office of the UEM, Dr. A. Bernardo, and the Rector of the UEM, Prof. Dr. F. Couto encouraged a memorandum between the UEM and the TUM. It was decided to exchange drafts of the contracts of cooperation of the universities by email so that the administrative part can be finished as soon as possible. (The draft of the TUM has been sent to Prof. Dr. Francisco by email on March 13th).

March 6th, meeting at the Faculty of Architecture

Prof. da Silva Lage, Dr. P. Fontes, C. Rapp, J. von Grabe, S. Gampfer

After the meeting with Prof. Dr. Couto the FPEH and additionally S. Gampfer had the chance to meet the Dean of the Faculty of Architecture of the UEM, Prof. da Silva Lage. The aims of the FPEH as well as student projects of the Faculty of Architecture of the TUM were explained to him. It

was positively discussed whether the FPEH initiative and the students projects mentioned above were able to form a basis for collaboration with the Faculty of Architecture as well. The campus and the facilities of the faculty were shown.

March 6th, meeting at the Faculty of Social Science

Prof. Dr. Ute Fendler, Dr. P. Fontes, C. Rapp, J. von Grabe, S. Gampfer
Prof. Dr. Ute Fendler, Professor at the University of Bayreuth and Initiator and Planner of the Mozambican degree in social sciences was met at the Faculty of Social Science. It was decided to get in contact in the near future to exchange experiences.



Fig. 6 Street Scene, Moamba

March 6th, meeting at the Ministry for Science and Technology

Prof. Dr. L. Francisco, Dr. C. Lucas, P. Fontes, C. Rapp, J. von Grabe, S. Gampfer

The outcomes of the meetings and the work plan for the different institutions were discussed with Prof. Dr. L. Francisco:

- A letter of intent shall be written by Dr. C. Lucas
- Prof. Dr. Massingue shall approve the letter and forward it to the FPEH
- The letter will be presented to the public relations office of the TUM and then a memorandum of cooperation will be initiated by the TUM

March 8th, meeting at the State Protocol Lounge of the International Airport of Johannesburg

Prof. Dr. V. Massingue, J. Macanze, C. Rapp, J. von Grabe

The Minister for Science and Technology of the Republic of Mozambique was notified about the state of affairs. The Minister explained that an agreement between the Ministry for Science and Technology of the Republic of Mozambique and the Ministry for Economy and Technology of the Federal Republic of Germany dated 2007 builds the framework for further steps. The memorandum of collaboration between the UEM and the TUM shall be based on this contract. Prof. Dr. Massingue appreciates the progress and agitates for the collaboration. He further invited C. Rapp and J. von Grabe once more to Mozambique to accompany a delegation of Mozambican experts to rural areas of the country to identify research topics in the fields of energy and water resources. He furthermore emphasized the FPEH to raise funds in Germany. Additionally he asked the FPEH to meet the Mozambican Ambassador in Germany in order to explain the plans for cooperation to him and to discuss questions of fundraising in Germany under the umbrella of the agreement between the ministries. A document of

about ten pages shall be written, sketching proposals for future research projects. A draft for a contract of collaboration between TUM and UEM shall be send to Dr. E. Chonguana as soon as possible so that the Ministry can push things forward.



Fig. 7 Meeting at the State Protocol Lounge, Johannesburg Airport

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