THE MEROWE DAM IN THE SUDAN
Lahmeyer International's Involvement and Assistance

The Merowe Dam and Hydropower Project is located on the River Nile about midway between Khartoum and the Egyptian border.

The purpose of the project is electric power generation (about 5,600 GWh/year), supply of water for irrigation and flood control. At present, some 600 MW of power only are installed in the Sudan for about 35 Million people which is less than 20 Watts per person. However, most of the population has no access to electricity at all.

The future Merowe reservoir will also help to extend the operational life time of the Aswan High Dam (Nasser Dam) in Egypt as most of the river sediments are trapped by the Merowe Dam. It has to be highlighted that the Aswan High Dam is the "back bone" of the agricultural industry in Egypt as water for irrigation is released uniformly throughout the entire year. Nowadays, no single farmer in Egypt can be found who would vote against this dam as their yearly production has increased significantly. In fact, a similar agricultural development concept will be implemented downstream of the Merowe dam to feed the biggest portion of the 35 Million people of the Sudan.

It is also emphasized that the Merowe hydropower plant will generate sustainable and clean CO2 free energy as almost no biomass exists in the future reservoir. About 90 % of the future reservoir area is desert land without any vegetation at all. The Merowe Dam Project is indeed one of the most environmentally friendly energy generation projects in the world as almost no green house gases are emitted (reservoir is mainly located in the desert) into the atmosphere, supporting the international action plan to counter global warming.

Finally it is noted in this introduction that the national economy of the Sudan and the private industries in the country will not and can not develop if the present power generation capacities are not increased. This development is however most urgently needed to create new jobs for millions of people and to safeguard social stability.

From 1990 to 2001 the Merowe Dam was studied by consulting engineers from Russia (Hydroproject Institute (HPI), Moscow). However, for project implementation MDPIU, the owner of the project considered it as important and essential to strengthen the engineering team. Therefore, the engineering services for the implementation of the project were newly tendered internationally in 2001. About 10 large internationally recognized engineering companies participated in this tender. Lahmeyer International was ranked No. 1 technically and was finally selected by MDPIU to design and supervise (quality assurance) the construction of the project. These services are exclusively of a technical nature (see Project Sheet).

In addition to the main technical service contract, Lahmeyer International was awarded an additional assignment by MDPIU in 2002 to perform a so-called "Environmental Impact Assessment". This study was based on information collected and pre-selected by Sudanese consultants and institutions (e.g. soil conservation society, museums & archaeologists, wildlife department). Due to the available budget, this assessment could not go to the expected detailed level at that time.

Within this context Lahmeyer International did not propose contracts with any Sudanese institution – comment in Messrs. Bosshard/Hildyard's report 22.2. – 1.3.2005, Section 4.

Together with the Environmental Impact Assessment, Lahmeyer International recommended the establishment of an Environmental Management Plan. According to our information,

MDPIU is in the process of contracting and finalzing this task. Lahmeyer International has also submitted a proposal to render Advisory Services.

Several basic studies have been done, or are still ongoing:

- Archaeological studies have been ongoing, since 2000, under the responsibility of the General Directorate of Museums & Archaeologists, with support from British and other Universities and study teams;
- Wildlife study, 2002, by the Wildlife Department;
- Social and socio-economic studies have been ongoing, since before 2000 for the future reservoir area and for the downstream future irrigation area. Beside this, we agree that the participation involvement process has to be intensively addressed, and this without any delay.

Concerning relocation of affected families (ref. Mr Askori's report 3.5.2005 2nd page, suggesting that they should be moved to one place as a group): no one area can be found in Northern Sudan to locate 50,000 people, particularly when considering that compensation will be 3 feddan for every 1 feddan lost. In addition every family will get an extra 6 feddan (about 2.5 ha).

Concerning Mr Askori's suggestion "resettlement in the same area on the outskirts of the lake" – using this area is foreseen but it can support only a few hundred families and can never be enough for all affected people. It has to be kept also in mind that at minimum reservoir water level these resettlements would be far away from the water.

According to our information and understanding, the various ethnic groups of the population to be resettled prefer to be resettled separately as individual ethnic groups and not as one group in one place. This is a very important aspect which MDPIU has taken into full consideration.

The first families of the Hamdab group, most of whom lived near the dam site (about 800 families), were resettled to El Multaga. Within this context we wish to note that by chance our project management attended a meeting/hearing between the affected people at the dam site and MDPIU some 2 years ago. The outcome of this meeting/hearing may be summarized as follows:

(i) Most of the mid age people wish to leave the area together with their children as soon as possible as no future is seen by them if they continue to stay in that remote area. Of particular importance is the education of their children and medical facilities. Also no water and electricity supply systems exist.

(ii) Most of the old people tend to stay, however are prepared to move for the sake of their children and grand children, provided a fair compensation is made. This topic is taken very seriously by MDPIU as a fair compensation concept has been ordered by the Government of the Sudan.

As the El Multaga irrigation area is on the higher Nile terraces, the natural soil conditions are less favourable than those of the soils near to the River Nile. However, more land will be allocated to those people and water for irrigation by pumping will be provided free of charge to the resettled people.

Compared to the traditional housing and village infrastructure existing in the affected area, the host infrastructure in El Multaga can be considered as a significant improvement and encouraged people to move to this place; it includes such items as:

- the 2 residential villages each with 300 family houses, together with schools, health centres, market facilities, mosques, and water supply and electricity;

- houses are built in a solid manner, out of local materiel, double walled, clay inside and red brick outside;
- houses have separate kitchen and separate sanitary facilities;
- the size of the parcels of land are much larger than the traditional parcels.

The new village infrastructure (particularly schools, health centres, markets) is not only available for the resettled people, but also for the population living in the host area, and in the neighbouring areas.

Note: No schools and health centres did exist in the original locations and there was no electricity or water supply. Children had to walk up to 15 km every day to reach the next school; this during summer time with temperatures well above 50 deg. C.

The foreseen transmission line from the Merowe dam site to Dongola will support sustainable development in the downstream Merowe area. Energy will mainly be used for domestic consumption, pumping of irrigation water, processing of agricultural products and handicrafts.

According to our information, the Government of the Sudan will spend up to 300 to 350 Million US$ to carry out the resettlement programme through MDPIU. Some 35 years ago the same was done successfully in the Sudan for the Rosaries Dam. Both, the resettlement and the compensation by means of allocation of irrigated land was carried out to the full satisfaction of the affected people.

Up to now Lahmeyer International was not involved in the resettlement campaign as according to MDPIU this is the duty and obligation of the Government of the Sudan which we fully respect. However, Lahmeyer International has rendered some advisory services in this respect.

To fully understand the environmental impact downstream of the project, MDPIU has conducted an extensive bathymetric survey along the River Nile over a reach of about 300 km which was managed by Lahmeyer International. Further studies, such as on the potential erosion of the river bed and sedimentation, will follow.

Attachement: Project Sheet