

# GABLE PROJECT

Consultancy report, JM Mendelsohn, August 1996

## **Introduction**

At the invitation of the USAID's GABLE project, I spent the week of 19-23 August 1996 in Malawi to investigate:

1. Immediate solutions to the problem of obtaining distance information to schools, such that transport contractors can charge reliably for delivering learning materials.
2. Longer term possibilities for the use of geographical information in helping the Ministry of Education to improve its management and planning of education.

While this report looks at these two aspects separately, development of a solution to the first issue will lead directly into a proposed course of action to address the second aspect. In considering the provision of distance information for transporters, I also reviewed tender and contract documents relating to arrangements between the Ministry of Education and private transport contractors. Comments on these documents are offered as a third contribution.

## **Background**

For some years there has been a need for information on distances to schools. This has been due mainly to the Ministry of Education's need to have a method of checking whether invoices submitted for transportation of materials to schools truly reflect the distances actually covered. From various discussions, I learnt that there is indeed a considerable amount of abuse, exaggerated distances being claimed by some transporters and also certified by some District Education Office staff. It is thus clear that the Ministry of Education needs a table of distances to schools which can be used for charging and invoicing purposes. That need is an urgent one, and some people expect that the necessary information will be available before the end of 1996.

The Ministry of Education is about to invite tenders for a contract to distribute learning materials during 1997 and 1998. The principles described in the draft tender document are clearly in line with current policy to privatise the distribution of materials to schools. Certain components of the tender are based on the assumption that mapping and distance information will be available before the end of 1996. The draft tender sometimes stipulates that the contractor will deliver materials to schools and/or distribution centres. The document also suggests that the Ministry of Education intends to manage too many aspects of the distribution and packing activities.

In addition to the immediate need for distances to schools, the Ministry of Education has longer term and more wide ranging needs for geographical information. That information would be most useful in addressing many of the plans described in the Ministry of Education's Policy and Investment Framework for Education in Malawi, 1995 - 2005. However, geographical information relating to education and of use in implementing these plans does not exist.

## **Suggested course of action:**

### *Distances to schools*

The Ministry of Education should immediately set in motion a work programme to produce a table of distances to schools. While these distances may be needed urgently, it should be made clear that a substantial amount of work is involved in compiling that information. Obviously, the more resources that can be made available to the work, the quicker it will be

accomplished. In compiling the necessary information, use must be made of a geographical information system to speed up the process. Use of a geographical information system would also serve to make useful information on education available for several other purposes, and that information would also be of considerable use to others in government service and other sectors in Malawi. I recommend that the following steps be taken:

1. That the positions of all schools in Malawi be recorded using global positioning systems. This component should be done in collaboration with the World Food Programme (WFP) which is, itself, starting to map schools (see Appendix A). Collaboration with the WFP will result in reduced costs and time. Unique codes used in the annual school survey must be recorded during field work while determining global positioning system coordinates. This will ensure that the GIS data can be linked to the Ministry of Education's school statistics. Mr Charlie Clarke (Emergency Officer) is the contact person at the World Food Programme for this work.
2. Roads on the recent Department of Survey's 1:250 000 maps must be digitised as soon as possible. These maps are sufficiently current and reliable to provide the necessary information from which routes and distances can be calculated. Any additional new information on roads can be obtained from the Director of Roads and/or from recent aerial photographs at the Department of Surveys in Blantyre. Mr Joster Makunje (Director of Roads) is the contact person for information on new roads.
3. Both the school positions and road information must be built into GIS databases. This should be done in collaboration with the Famine Early Warning System (FEWS) which has a considerable amount of expertise and GIS data. Contacts at FEWS are Ms Lezlie Moriniere and Mr Sam Chimwaza.
4. Potential routes must be analysed and proposed during a "desk study". The results of this study should be printed out on draft maps and then tested and discussed with staff in the District Education Offices. These discussions will lead to the maps being improved by the addition of locally relevant information, for example, a bridge along a route may no longer being useable. The discussions will serve to inform people on how the information was obtained and there should therefore be greater agreement on the table of distances.
5. Once proposed routes are agreed upon, the GIS should be used to calculate a set of "official or standard" distances for all schools. These distances will become the basis of charge rates for deliveries of materials to schools. A similar system is now used successfully by ADMARC in distributing goods to over 1000 locations.
6. Once the table of distances is complete, it will be made available to all transporters to be used when they submit invoices for deliveries. The table can also be updated from time to time as new schools are established and road conditions change.
7. As I mentioned above, a substantial amount of work is involved in this project. The Ministry of Education may wish to proceed with a full commitment to collecting all the necessary information for Malawi, and some indications of the amount of time needed are presented at the end of this document (Appendix B). Should, however, a more tentative approach be preferred, it might be desirable to go through the steps described here for one or two districts to test all the procedures before tackling the country as a whole.
8. Finally, it should be mentioned that the real problem here is that the charging system is being abused. While mapping and other procedures to obtain information on distances can help solve that problem, the issue of abuse also deserves appropriate treatment. Every effort should therefore be made by the Ministry of Education to identify and punish those guilty of abusing Government funds.

*Comments on tender and contract documents*

The draft tender and contract documents for 1997 and 1998 are very clear in many respects. However there are certain aspects which, I believe, could be improved. The following suggestions are offered:

1. The contract should include a clause stipulating that materials must be delivered within a certain period (e.g. 14 days) after being made available for packing and collection from central warehouses. That period should be standard for all schools in Malawi, irrespective of distances or local road conditions.
2. The Ministry of Education should seek the services of a transport **Broker** rather than a Contractor. In effect this is what is happening already in the present agreement with EB Trucking, since that company subcontracts much of the work to other transporters. However, the clear recognition of a broker's services will clarify many of the relationships between the Ministry of Education and the transporters. It will also mean that the Ministry of Education does not get involved in the details of what kinds of vehicles will be used, what routes will be used, the kinds of computers to be used and other details of transportation services. The tender should simply call for a broker who will be able to deliver the necessary service efficiently.
3. The agreement should include a clause saying the contract will be re-confirmed every 6 months subject to the satisfactory performance of the broker. This will provide a safeguard to the Ministry of Education should the transport broker not be able to deliver a satisfactory service. The Ministry could then enter into a contract with another broker if need be.
4. The Ministry of Education should use a standard Delivery Schedule which would be issued to the contractor. The schedule would list the schools to which materials would be delivered, the materials to be packed and delivered, and the date before which delivery must be complete. Until "official" distances to schools have been determined, the schedule will include a column showing the distance travelled to each school. That distance information will be completed and certified by the principle broker, and not, as is currently the case, by subcontractors and District Education Office staff. The Schedule would have the Authority to Collect attached to it, and also serve as an invoicing tool with Proof of Delivery certificates attached to it.
5. Transporters must deliver materials to schools directly. Distribution centres or District Education Offices should not be used as intermediaries. It is clear that transporters can reach all schools in Malawi. The use of intermediate storage and delivery points will only delay matters and lead to potential losses of materials.
6. The current system of paying contractors is problematical, and the Ministry of Education should approach the Treasury to investigate an alternative payment system because the delivery of learning materials to pupils is so critical.
7. The Ministry of Education should seek advice from the Transport Logistics Unit (Ministry of Relief and Rehabilitation) and the World Food Programme in their use of transport brokers and a Commodity Tracking System. The latter computer system could be modified for use by the Ministry of Education to track the delivery of all materials to schools. The contact person is Mr Charlie Clarke (Emergency Officer) while Mr Wayne Gill is the person who designed the Commodity Tracking System for the World Food Programme
8. Once materials are pre-packed at central warehouses, Distribution Clerks in DEOs will be less involved in delivering materials to schools. They could then become more involved in checking and controlling distances travelled to schools, especially until such time as a table of distances has been established.

### *Geographical information and education planning and management*

The creation of GIS databases for schools and roads provides a very useful start to the development of geographical information to serve a wide variety of management and planning needs. The best part of this is that the initial development is being led by a demand for very real and useful information, i.e. distances to schools. The development of a GIS should serve the following needs in the Ministry of Education:

1. As an analytical tool it will be used to study aspects such as the supply and demand for education in Malawi, gender issues, school performance, marginalisation and the progression of pupils through the school system.
2. As a planning tool it will provide information on where new schools are to be built, where more teachers are required, where new classrooms are needed, where in-service training is most in demand etc. Many of these planning requirements follow directly from needs stipulated in the Ministry of Education's Policy and Investment Framework for Education in Malawi, 1995 - 2005.
3. It will provide valuable information to Ministry of Education staff, other ministries, and a variety of other sectors in Malawi. For example, simple, yet up-to-date maps of schools for each district will increase the level of local knowledge about schooling substantially.
4. It will provide a mechanism for the retrieval of information about education, users being able to acquire information about any district or school, or any group of districts or schools.

As suggested before, development of a GIS must occur in close collaboration with other Malawian GIS developers and users, thus saving the Ministry of Education time and money, ensuring that it is well used, and helping to stimulate development along the right track. In collaborating with others, the Ministry of Education will gain access to much valuable information, for example from the 1996 population census, information on poverty levels, and on health conditions.

## **Appendix B**

Approximate time budget for work to derive information on distances to schools:

1. Obtaining global positioning systems, designing data sheet, training of field workers to map schools, organising logistics for field workers = 10 days
2. Mapping of schools, average of 10 schools mapped per day = 350 days
3. Digitising of roads from maps = 25 days
4. Building of databases = 10 days
5. Prepare and print draft maps = 5 days
6. Proposing routes and distances = 10 days
7. Visits to each District Education Office, one Office per day = 28 days.
8. Preparation of final table of distances to schools = 5 days.

### *Notes:*

- a. Mapping of schools should be done by teams, each team having a vehicle and visiting an estimated average of 10 schools every day. Obviously, the more teams that can be assembled, the quicker this part of the work will be complete.
- b. Digitising of roads from the 1:250000 maps can be done by many people and companies. However, the project leader for this work will have to stipulate clearly how the

digitising is to be done and how the digitised data should be delivered to the Ministry of Education.

c. One person, preferably the project leader, should build the databases, prepare and print the draft maps, propose routes and distances, play a strong role in consulting the District Education Office staff, and prepare the final table of distances.

### **Appendix C**

#### *List of people consulted:*

Mr Macpherson Jere (Deputy Director, Planning, Ministry of Education)  
Mr Charlie Clarke (Emergency Officer, World Food Programme)  
Ms Lezlie Moriniere (Famine Early Warning System)  
Officer in Charge, Department of Surveys, Lilongwe Office  
Mr Joster Makunje (Director of Roads, Ministry of Works)  
Mr Eddie Cormack (Operations Manager, MITCO)  
Mr BP Bhagwanji (Managing Director, Bhagwanji Transport Co)  
Mr KS Chalera (Logistics Manager, Ministry of Education)  
Mr SN Tsokonombwe (Procurement Manager, Ministry of Education)  
Mr Clive Mchikoma (Statistics Unit, Ministry of Education)  
Dr Sue Grant Lewis (GABLE)  
Ms Shobna Chakravarti (USAID)