Annex II
Report of field visit to Amboseli and meetings in Nairobi, 22-23-24 September 2002

Participants

- Paul Campling, KULeuven
- E.K. Shishira, University Dar Es Salaam
- GC Mutiso, Sasol
- Peter Westerveld, WCT
- Anne Coutteel, Protos

Program

- 22 September:
  - Informal contact with senior warden of Amboseli National Park , Kenyan Wildlife Service: Michael L. Kipkeu
  - Visit to area outside park, south of the national park:
    - gully erosion
    - seasonal river Kitenden: reconnaissance of riverbed and suitable dam sites
    - borehole with broken lister pump
    - infiltration dam downstream on Kitenden river
- 23 September:
  - Meeting at KWS with Michael L. Kipkeu and Simon Musyoki (warden)
  - Amboseli elephant research project (camp site and offices)
- 24 September:
  - Meeting with Belgian engineers working at PolyGIS, Nairobi Polytechnic
  - Visit to Survey of Kenya to enquire about aerial photographs
  - Other contacts by telephone

Description of activities

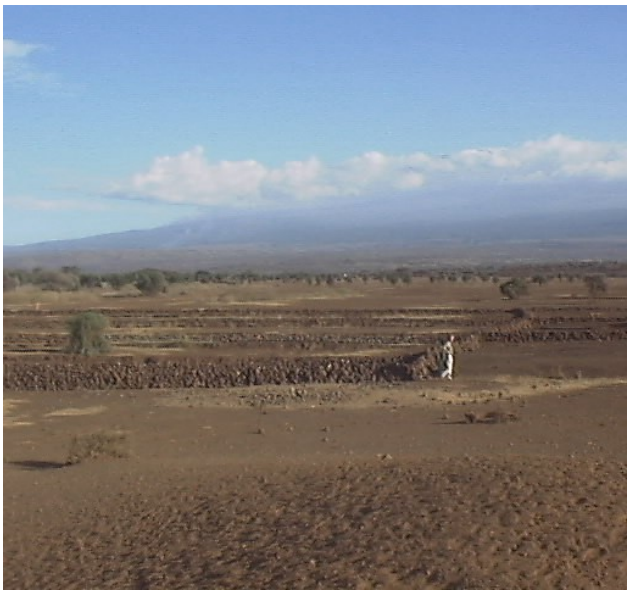
1. *Informal contact with senior warden of Amboseli National Park , KWS: Michael L. Kipkeu*
   - Introduction of project and participants
   - Arrangement for formal meeting on Monday
   - WCT arranged for construction of another infiltration dam starting in November, and discussed practical issues on bulldozer starter problem.
   - M. Kipkeu was very explicit about the continuing water problems in the park and outside. A lot of negotiation has to be done continuously in order to prevent major water related conflicts.

2. *Visit to site with gully erosion*
   - As a result of deforestation and drought, some spectacular gully erosion is occurring at several places. Gully head is situated where forest stops. The gully head visited was about 6 m wide and 2 m deep and is extending for up to a few km. The soil is potentially fertile but very erosive due to lack of ground cover and drought.

3. *Seasonal river Kitenden: reconnaissance of riverbed and suitable dam sites*
   - We walked up the riverbed for about 1-2 km until the start of a deeply incised valley. The valley is characterized by a lot of bedrock outcrops and is suitable for a series of sub-surface water dams. The source of the river is in Tanzania, on the northern slopes of Mount Kilimanjaro. This catchment could therefore be very suitable to combine the Tanzanian and Amboseli interventions in the framework of the REAL project. Especially as Kitenden river is located in the wildlife corridor between Mount Kilimanjaro and Amboseli National Parks. The corridor is very important to allow wildlife to migrate especially during periods of severe drought, but its functioning is being hindered by different interests: wildlife, agriculture, livestock and problems of coordinating a corridor common to 2 countries. One of the alleviating factors would be to improve water availability and diminish pressures on existing water points.

4. *Borehole with broken lister pump*
   - This water point was being installed in the 80s by ?? and has recently broken down. Water was pumped up from a depth of 70 m using a diesel driven lister pump and it was pumped into a reservoir serving standpipes for human consumption. A concrete cattle trough was installed for livestock to drink from.
   - Alternative solution to rehabilitate this water point are:
     - KWS is thinking of putting a windmill on it (but they have no budget),
     - WCT has requested the TU delft students to investigate possibilities of using donkey power

5. *Infiltration dam downstream on Kitenden river, for seasonal and river water*



- The infiltration dam is designed to harvest runoff water to enable the re-hydration of an area of 25 ha so that reforestation can be established.
- The experimental infiltration dam was completed in April 2002. It consists of 4 parallel stone walls (in 3 parts: fine stone, medium stone, boulder rock) of different lengths with different sized silt traps in between. Behind the infiltration system is an open reservoir bounded by a (rehabilitated) earth dam. The intake channel is on Kitenden river.
- The idea is to move the filtration structure to a neighbouring area after rehydration into natural maintenance is completed (through reforestation, as filtration is then carried out by trees, and scrubs + grass for filtration).
- Construction was done by KWS and WCT, using a bulldozer for digging the silt traps, excavating the earth dam and carrying the material for the filters. Local Masai people were contracted to lay the infiltration walls. Cost of the dam is estimated to be 15,000 USD excluding WCT costs.
- So far the dam has captured 4 showers, which fell in April. Livestock and wildlife has been reported to drink from the reservoir. It is to early to fully evaluate the performance of this experiment. Monitoring will be continued. The local Masai people are interested in constructing a new dam as soon as possible.

6. *Meeting at KWS with Michael L. Kipkeu and Simon Musyoki (warden)*

- Amboseli National Park was created in 1974 inside the Game reserve. It covers an area of 394 km2 whereas the game reserve extends over 3,800 km2. On creation, the local Masai people were promised water supply points outside the park but they were never installed. Therefore, Masai people continue entering the park with their cattle herds, especially in periods of drought.
- The existing water system so far is a pumped system with a pipeline of 90 km, and it serves some points on the park boundaries. But due to a technical problem at the source, there has been no water at all for the last 2 months. Masai livestock is intensively using the Amboseli park water points. KWS is now organizing emergency water deliveries with water tanks.
- Apart from the pumping system, there are a few boreholes that have been installed by some donor agencies, but without paying attention to ownership, so most of these points are out of order.
- The game reserve consists of several group ranches on which land ownership has been shifted from communal to individual titles. There is also a concession area.
- The group ranches are invited to share the task of supporting the wildlife with KWS. This is done through extending the animal range (creation of conservation areas outside the park like bird and rhino sanctuaries, …), sharing the benefits with the local communities, protecting the migration corridors and sharing responsibilities in managing the wildlife.
- In some of the group ranches, there are irrigation schemes. Conflict of interest have to be managed and are even more complicated as Ministry of Agriculture is also involved.
- A General Management Plan for the region will be established. This will be a UNESCO biosphere action where KWS will be one of the stakeholders. This is surely a long process (10 years??) because it aims satisfying all actors involved.
- In the meanwhile, there are some initiatives to undertake joint actions with the Tanzanian counterparts. Meetings are organized so that local villages can discuss common issues.
- KWS is interested in the REAL project because it is action-oriented. So much research has been done so far but KWS is almost never receiving copies of reports. Relevant documents and data concerning water and socio-economic issues are therefore not readily available. For the socio-economic data, an update and special focus on the REAL project area is essential as socio-economic and environmental conditions are changing rapidly.
- Prof Shishira will investigate the data availability on the Tanzanian side of the catchment (both in terms of socio-economic and land assessment data) and will then propose a strategy to fill in the data gaps. Protos will assist the process of building a community participation plan at distance and throughout 2 field missions, the first will probably take place in Jan -Feb. 2003.
- KULeuven will make an inventory of the spatial information available (land cover, land use, hydrology) for the Kenyan side.

7. *Amboseli elephant research project (camp site and offices)*

- Cynthia Moss, an American elephant expert, is working on elephant survey since more than 20 years. They are concentrating on the monitoring and the movements of elephants within and outside the national park. They plan to develop a GIS system to store and analyze spatial information. This is still in the setting up phase. Maybe there is an opportunity for cooperation to share land cover and land use information.

- Some reflections:
  - Can you mobilize community participation to work on dam structures in an area serving national Park interests? Yes, dam constructions are outsed n.p. to the benefit of the humans, livestock and wildlife populations
  - How to reconcile the conflicting interests in the corridor?
  - How to deal with project means and research purposes (and work on a few dams in one catchment) and KWS and Masai people needs. KWS stressed the importance of improving humidity conditions at several catchments (in order to avoid over concentration)

8. Meeting with Belgian engineers working at PolyGIS, Nairobi Polytechnic

- Paul Campling met up with Ziggy Vanlishout (from Belgium) and Hellen Wandabwa (from Kenya), who work at the PolyGIS initiative set up in Nairobi Polytechnic at the Dept of Surveying and Mapping. PolyGIS was started in 1998, and an extension of the project is expected to start in January 2003. PolyGIS is supported financially by VVOB (Technical Assistance from the Flemish Government), and there are presently two Belgians working there for the past 4 years: Ziggy Vanlishout and An Notenbaert. The following website gives a good overview of the PolyGIS project: http://www.ddl.org/figtree/pub/proceedings/nairobi/wandabwa-TS18-3.pdf
- We discussed the possibility of Nairobi Polytechnic students doing their final year projects within the framework of the REAL project. The students are principally trained in land surveying, which would be very complementary to the more thematic work of TU Delft and KU Leuven students. The periods when Nairobi Polytechnic students can do field work are April and August (ie. during their holidays). The PolyGIS lab is well equipped with computers and GIS paraphernalia (digitizing, plotting, GPS equipment). Ziggy will investigate whether VVOB can support Kenyan students to do some fieldwork. In principle Ziggy and Hellen were very enthusiastic that students could be involved in a real life project (excuse the pun). The details still have to be worked out as well as the financial implications.
- PolyGIS also runs extra-mural day time or evening short courses in GIS, which could be of interest to SASOL staff.
- Concerning aerial photographs – Paul was given two sources:
  - Photomap (a private company in Nairobi, carrying out aerial photograph surveys, but also with an archive of aerial photographs). Tel 726027, Fax: 726028 Email photomap@form-net.com
  - Survey of Kenya (Thika Road)

9. Visit to Survey of Kenya to enquire about aerial photographs

- Paul Campling visited Survey of Kenya to enquire about aerial photographs for the two case study areas. He met Mrs Jen (responsible for aerial photograph enquiries) and Mr. Sammy Muyanga (from Air Survey Dept).
- The procedure for receiving aerial photographs and topographic maps (1:50000) is to write a letter (two copies) to the DOD asking for permission to use aerial photographs, citing the reasons. There is a search cost of 300 Ksh (c. 4 US Dollars) and each photograph costs 500 Ksh (c. 6.5 US Dollars). I asked whether Prof GC Mutiso could write the letter, and this was encouraged. Mr. Sammy Muyanga is from the area and knew very well about ground water dams of SASOL.
- With Mr. Sammy Muyanga we checked availability of photographs for the two case study areas:
  - Ikanga Topographic Map (164/1 - Kitui case study) – full coverage from 2 surveys
    - 1967? 1:20,000 scale black and white
    - 1980 1:20,000 scale colour.
    - The number of photos points on the topographic map covering the R. Ngonga catchment (source to case study dam) is 8. So probably not more than 20 photos would be needed. The scale is only suitable for the catchment study (regional scale), rather than the dam study (local scale).
  - Rongai Topographic Map (left 42/3 – Amboseli case study) – full coverage from 1 survey (1:20,000). Date is pre-independence and aerial photographs are not held by Survey of Kenya (probably held in Tanzania).

10. Other contacts by telephone

- The following people were contacted by phone or email.
  - Dr Suzy Serneels, Remote Sensing Specialist at ILRI (International Livestock Research Institute). She is on leave in Belgium, and is due to give birth – image availability can be discussed in Belgium.
  - Mr Steve Jackson, UNEP (tel: 623332) was not available but a message was left on his voicemail, that contact would be pursued by email.
  - Amboseli elephant research project Nairobi Office – no answer.