

Pollution Control and Other Measures to Protect Biodiversity in Lake Tanganyika
(RAF/92/G32)

Special Studies: 'Pollution of International Waters', 'Sediment Discharge and its
Consequences' and Related Biodiversity Studies

Back-to-Office Report on Visit to Lake Tanganyika, 8 August to 4 September, 1996

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1. Introduction

This 'back-to-office' report is a summary of the visits to laboratories and institutions, meetings held and field site visits made during the mission, together with principal action points. It has been prepared as a precursor to the main 'Mission Report' which will be a multi-author document, incorporating contributions by all the project technical advisors involved.

The task of this mission, as detailed in the Terms of Reference, was to make a practical assessment to follow up the Baseline Review and to draw up plans for detailed studies to be initiated in Stage II. The mission, following the Inception Workshop of the project, was to establish which institutions can most suitably undertake the studies in each country, enlisting their support in setting scientific objectives, development of terms of reference and implementation of different elements of the special studies, also considering contractual arrangements.

In order to optimise personnel time, the team was divided such that the visits undertaken by R W Duck (RWD) were to Tanzania and Zaire only. Owing to the current security situation in Burundi, no team member was able to visit that country.

2. Summary of Principal Activities

Friday 9 August

Arrive in Dar es Salaam, Tanzania

Saturday 10-Sunday 11 August

Meetings to discuss plans of work, progress to date and likely itineraries, held with PCU staff, Andy Menz (AM) and Keith Banister (KB), together with other project technical advisors involved in the country visits, Tony Bailey-Watts (TBW), Chris Foxall (CF), Eddie Allison (EA) and Philippe Petit (PP).

Monday 12 August

Morning flight from Dar es Salaam to Kigoma, Tanzania. Afternoon meeting with senior scientific staff, principally Dr John Craig, of the FAO/FINNIDA LTR Project in Kigoma.

Tuesday 13 August

a.m. - Consultation with principal staff of the Kigoma Regional Water Department (KRWD). Present RWD, TBW, CF together with Michael Baragwiha (Regional Water Engineer), C E L Rubabwa (Geologist) and Theodore Mpyalimi (Hydrologist In Charge), followed by visit to Chemistry Laboratory for discussions with Paul Kiliho (in charge of the laboratory) and Mbarak Shemweta (water quality technician). p.m. - Visit made by RWD, TBW and CF to the laboratory facilities of TAFIRI in Kigoma.

Wednesday 14 August

Informal discussions with Nshombo Muderwa, Fisheries Ecologist and Director of the Centre Recherche Hydrobiologique (CRH), Uvira, Zaire, in KB's office. RWD, TBW, EA, PP and Bertha (Personal Assistant of KB) departed for overnight voyage to Uvira on board the *MV Mwongoza*.

Thursday 15 August

Arrival at Uvira at 09.00 hours. Period of four hours taken to clear customs and immigration formalities for entry into Zaire (N.B. We had not been informed that persons entering Zaire for the first time, which was the case for all the members of the group, must do so initially via Kinshasa). Afternoon meeting viewing the exterior and interior of the CRH facilities prior to main meeting of staff on 16 August. Discussions of potential work sites with CRH personnel.

Friday 16 August

Series of sub-group meetings held at CRH. RWD met with staff whose research interests include sediments, sediment transport and hydrology: Kakogozo Bombi (Scientific Secretary of the Hydrology Department), Mwenyemali Banamwezi Dieudonné (Research Assistant, Department of Hydrology) and A Kwetuenda Menga (Dr of Physical Limnology, Scientific Director in Charge and Administrative and Financial Director of CRH). Assessment of CRH library facilities and consultation with librarian. Following sub-group meetings RWD, TBW, EA and PP met with assembly of all CRH staff to present a summary of our discussions and afford the opportunity to answer questions about the Lake Tanganyika project. Late afternoon visits made to two river sites to the close to Uvira (the Kalimabenge River, virtually in the town, and the Mulongwe River, 1 km to the north), the hot springs of Kagando and part of the Ruzizi Delta plain (c. 5 km to the north of Uvira).

Saturday 17 August

Return journey from Uvira to Kigoma via the *MV Bahati* arriving at 09.00 hours, Sunday 18 August, after eight hours at anchor in the harbour awaiting arrival of Kigoma Port customs and immigration officials.

Sunday 18 August

Re-immigration formalities for Tanzania completed by 13.00 hours. Afternoon meeting (RWD, TBW, EA, PP and KB) to review logistics for visit to Mahale National Park.

Monday 19 August

Preparations made for departure to Mahale by means of the *RV Echo*, the research vessel of TAFIRI. Visit abruptly halted on embarkation at Kigoma as vessel was urgently required by TAFIRI personnel to search for missing fishing boats. Departure for Mahale delayed until Tuesday 20 August.

Tuesday 20 August

Journey to Mahale (RWD, TBW, EA and PP; departure 07.00, arrival 19.30 hours) on the *RV Echo* southwards along the western shores of Lake Tanganyika via the deltas of the Rivers Luiche (9 km, c. 1 hour from Kigoma) and Malagarasi (37 km, c. 2.5 hours from Kigoma). The latter explored by means of an inflatable. Serious problems encountered with the engine of the *Echo* en route and in terms of on-board facilities, equipment and practices.

Wednesday 21 August

Morning meeting with the principal staff of the Mahale National Park: Arui Hamidu Seki (Senior Park Warden in Charge), James Wakibara (B.Sc., Park Ecologist), William Daniel (Park Warden in Charge of Law Enforcement) and Frederick Malisa (Park Warden Responsible for Tourism and Community Conservation Service). Discussions held on the running of the park, the interests and aspirations of staff, their equipment base and facilities. p.m. - visits to various parts of the park from the lake aboard the *Echo* had to be aborted owing to further engine problems which delayed eventual departure from Mahale. Afternoon was therefore spent visiting some of the terrestrial environments of the park; beach, nearshore, fluvial channels etc. Party divided (03.00 hours) at village of Lagosa, RWD and TBW returned to Kigoma on the *Echo*, EA and PP boarded *MV Mwongoza* to head south.

Thursday 22 August

Return journey to Kigoma on *RV Echo* completed.

Friday 23-Sunday 25 August

Site visits made by RWD and KB to the varied nearshore lacustrine environments present within a few km to the south of Kigoma: rocky shorelines close to Kigoma, boulder and cobble beaches to the north and south of the promontory at Kitwe, the extensive, flat, sand beach at Ujiji and the two small pocket beaches of sand (Jacobsen's Beaches), bounded by rocky promontories, c. 5 km to the south of Kigoma, north of Kitwe. Visit was also made to channels and inter-distributary areas of part of the onshore development of the Luiche Delta (see also 20 August) to the south of Ujiji.

Monday 26 August

Meetings (RWD, TBW, KB) with the British High Commissioner to Tanzania, Alan Montgomery (AM) to discuss Lake Tanganyika Project.

Tuesday 27 August

Morning meeting (RWD, TBW) with Mr Dattomax Sellanyika, Warden In Charge of the Gombe National Park to review logistics for visit to Gombe on Thursday 29 August. Afternoon trip by an old, Ujiji-style, fishing boat to visit cliff and gully erosion sites to the north of Kigoma and south of Gombe. Present: RWD, KB and AM's daughter Justine (JM). Problematical and lengthy return journey to Kigoma owing to development of leaks in vessel necessitating four stops en route to effect makeshift repairs.

Wednesday 28 August

RWD, KB, Theodore Mpyalimi (Hydrologist In Charge at KRWD) and a second member of KRWD staff visited the lowermost gauging stations on the Rivers Malagarasi (DANIDA Gauging Station 4A9) and Luiche (Gauging Station 4B9), respectively 107 km (c. two hours and 15 minutes driving time plus ten minutes walk) and 25 km (c. 40 minutes driving time) from Kigoma.

Thursday 29 August

Full day trip to Gombe National Park via 'Aqua Lodge' boat (RWD, KB, Bertha, AM, JM). Meeting with Dattomax Sellanyika to discuss and view potential unimpacted river sampling sites.

Friday 30 August

Morning flight Kigoma to Dar es Salaam. Afternoon briefing meeting with AM and GP.

Saturday 31 August

Meeting with AM, GP, TBW, CF and EA to review findings of mission.

Sunday 1 September

Meeting to discuss and establish structure of 'Mission Report' with TBW, EA and CF. Contacts made with Peter Llewellyn (PL), Deputy Director of the British Council, Tanzania (a Chartered Engineer with expertise in boats) and Tony Collins, a researcher at Gombe who has information on lake-side erosion to the north of Kigoma.

Monday 2 September

Meetings (RWD, TBW and CF) at: (1) Department of Geology, University of Dar es Salaam, with Dr Hudson Hamisi Nkotagu (Hydrologist and Acting Head of Department) and Dr S Kapilima, (Stratigrapher); (2), Ministry of Water (formerly Ministry of Water, Energy and Minerals), Dar es Salaam, with Mr Meraji O Y Msuya (Acting Director of Water Resources) and Mr Julius Mihayo; (3), Department of Civil Engineering, University of Dar es Salaam, with Mr Simon H Mkhanda, co-ordinator of

the FRIEND (Flow Regimes from International and Experimental Data) programme for southern Africa.

Tuesday 3 September

Meeting with PL, EA and AM to discuss the former's potential involvement surveys of the *RV Echo* (Kigoma) and *RV Angela A* (CRH vessel, Uvira). Flight Dar es Salaam to Amsterdam.

Wednesday 4 September

Flight Amsterdam to UK.

3. Principal Action Points

- The image and organisation of the mission would have been considerably improved if the project technical advisors had been provided with a corporate identity in the form of uniformly-produced, project business cards. Each using their own university or institution card often proved confusing at meetings with local personnel. In addition, professionally produced publicity material, describing the project and its aims, would have been of great benefit at meetings. It is requested that corporate business cards and a publicity leaflet are produced for future visits.
- The Tanzanian visas obtained on behalf of the project technical advisors in the UK by NRI are for single-entry only. When Tanzania was re-entered, following a visit to another country, it was necessary to pay US\$ 50 per person, thus adding to personal expenses. It is requested that multiple-entry visas are obtained for Tanzania in the future to avoid both additional personal expense and unnecessary delays at immigration (see above) caused by the wrong type of visa.
- There appears to be a negative public perception of the project in Kigoma which must be improved quickly.. The level of support and facilitation provided by the Scientific Liaison Officer was generally poor. The SLO took/accompanied me on the relatively short visits in Tanzania, close to Kigoma, but he did not travel on the 'major' (and arduous) trips to Uvira and Mahale, indeed nor did African counterparts. No meetings were arranged with the National Co-ordinators. I was not prepared in advance for items of considerable expenditure such as the purchase of boat fuel and supplies for the *Echo*. Whilst the office facilities available in Kigoma are excellent, the organisation and logistical support provided by the SLO was, at times, quite appalling. This is seen as a major shortcoming of the project and will be addressed fully in the 'Mission Report'.
- The *RV Echo*, on which US\$ 11, 000 has allegedly been spent yet she is still in a poor mechanical condition, will form an important subject of the 'Mission Report'. Before any more money is spent on the vessel, it is recommended that she be given a thorough examination, both in and out of the water, by a qualified

boat/marine engineer (ideally PL, see above). Only then can the true costs of upgrading her to the efficient, safe and clean standards expected of a research vessel be realistically assessed. Such a survey should determine if indeed it is worth spending any more money on the *Echo* or if the resources of the project would be better directed towards another vessel.

- There is no history of sedimentation research at TAFIRI/LTR and only limited work has been carried out at CRH. The 'Mission Report' will include full details of laboratory facilities and relevant equipment. In general terms, the institutions visited are either not equipped or grossly under-equipped to carry out studies of sediment transport, suspended sediment concentrations etc. RWD and GP should discuss the basic equipment requirements for the various laboratories to undertake sediment discharge studies. It seems likely that CRH, Uvira and TAFIRI/LTR, Kigoma, will be the main laboratories for Zaire and Tanzania, respectively.
- A corpus of archive data (pre-1960) on water and sediment discharge in rivers of the former Belgian Congo (now Zaire) is believed to be held in the Royal Belgian Museum of Central Africa, Tervuren, Belgium. Also held are data on the level of Lake Tanganyika through time which may be of value. In order to evaluate these archive data it will be necessary to identify a scientist, fluent in the French language (and ideally a knowledge of Flemish), who could be contracted to undertake a review at Tervuren. A listing of data for relevant Tanzanian rivers, held by the Ministry of Water, Dar es Salaam, is to be provided.
- On the basis of the institutional visits made, it seems unlikely that the management of this project at laboratory level can be carried out wholly with local personnel. Although many well qualified and highly motivated staff were identified, it is believed that each of the main laboratories in the riparian countries will require the qualified scientific and technical support of outside personnel. It is suggested that, for isolated sites such as CRH, it may be necessary to appoint two such technical managers.
- Whilst the primary remit of the mission was to assess institutional capabilities, opportunities to visit several potential field sampling sites arose. Details of these and their suitability for sedimentation studies will be provided in the 'Mission Report'.

R W Duck, 13 September 1996

