GCP/RAF/271/FIN-TD/02 (En) May 1992

REPORT OF THE FIRST JOINT MEETING OF THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITTEES OF PROJECT GCP/RAF/271/FIN (Bujumbura, 20-22 May 1992)

FINNISH INTERNATIONAL DEVELOPMENT AGENCY

FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS

Bujumbura, May 1992

PREFACE

The Research for the Management of the Fisheries on lake Tanganyika project (Tanganyika Research) became fully operational in January 1992. It is executed by the Food and Agriculture Organization of the United Nations (FAO) and funded by the Finnish International Development Agency (FINNIDA).

This project aims at the determination of the biological basis for fish production on lake Tanganyika, in order to permit the formulation of a coherent lake-wide fisheries management policy for the four riparian States (Burundi, Tanzania, Zaïre and Zambia).

Particular attention will be also given to the reinforcement of the skills and physical facilities of the fisheries research units in all four beneficiary countries as well as to the build-up of effective coordination mechanisms to ensure full collaboration between the Governments concerned.

Prof. O.V. LINDQVIST
Project Scientific Coordinator

Dr. George HANEK
Project Coordinator

TANGANYIKA RESEARCH
FAO
B.P. 1250
BUJUMBURA
BURUNDI

Telex: FOODAGRI BDI 5092

Tel.: (257) 229760

Fax.: (257) 229761

GCP/RAF/271/FIN PUBLICATIONS

Publications of the project are issued in two series:

A series of technical documents **(GCP/RAF/271/FIN-TD)** related to meetings, missions and research organized by the project.

A series of working papers **(GCP/RAF/271/FIN-WP)** related to more specific field and thematic investigations conducted in the framework of the project.

For both series, reference is further made to the document number **(01)**, and the language in which the document is issued: English **(En)** or French **(Fr)**.

For bibliographic purposes this document should be cited as follows:

FAO, Report of the First Joint Meeting of the Coordination and International Scientific Committees of Project GCP/RAF/271/FIN. FAO/FINNIDA Research for the Management of the Fisheries on lake Tanganyika. **GCP/RAF/271/TD/02(En)**: 37p.

TABLE OF CONTENTS

REPORT OF THE FIRST JOINT MEETING OF THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITTEES OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20—22 May 1992)

1. The first Joint Meting of the Coordination and International Scientific Committees of Project GCP/RAF/271/FIN Research for the Management of Lake Tanganyika was held from 20 to 22 May 1992 at Buj umbura, Burundi.

ITEM 1: OPENING OF THE MEETING AND ELECTION OF THE CHAIRMAN

2. The FAO Representative, Mr. P.M. Biabatantou, welcomed the members of the Coordination and International Scientific Committees to the first Joint Meeting. He thanked the Project and the Government of Burundi for hosting the meeting. He welcomed the delegates from the four participating countries sharing Lake Tanganyika, the representatives from Finland (Kuopio university), FAO Heaquarters (Rome) and the observers. He stressed the importance of thins first joint meeting and wished the Committees success in their deliberations.

3. The First Joint Meting of the Coordination and International Scientific Committees was attended by delegates from Burundi, Tanzania, Zambia and Zaïre, representatives of the University of Kuopio (Finland), observers from Research Institutions, Universities and others Projects, and FAO. The list of participants is given in Annex 1.

4. Prof. 0. Lindqvist, the Project Scientific Coordinator, and Mr. Antoine Kiyuku, Director of the Fisheries Department in Burundi, were elected Chairman and Vice-Chairman, respectively.

ITEM 2: ADOPTION OF THE AGENDA

5. The Agenda was adopted as presented in Annex 2.

ITEM 3: WORK PROGRAMME FOR THE PREPARATION PHASE

6. Dr. G. Hanek presented the different activities for the preparatory phase (18 months) of the project as given in Annex 3.

ITEM 4: TERMS OF REFERENCE OF THE PROJECT COORDINATION COMMITTEE

7. The Committee agreed on the terms of reference of the Coordination Committee as presented in Annex 4. The permanent and coopted members were presented to the Committees and listed.

ITEM 5: TERMS OF REFERENCE OF THE PROJECT INTERNATIONAL SCIENITIFIC COMMITTEE

8. The Committee agreed on the terms of reference of the International Scientific Committee as presented in Annex 5. The permanent and coopted members were presented to the Committees and listed. It was also agreed that members from other related projects or research institutions could be coopted for the future meetings.

ITEM 6: PROJECT COORDINATOR PROGRESS REPORT

9. Dr. G. Hanek, the Coordinator of the Project, presented his progress report as given in Annex 6.

10. He pointed out that the rehabilitation works in Bujumbura and Kigoma were almost completed and that the problems with the tenders for the construction works in Mpulungu would have to be solved soonest.

11. It was agreed that part of the funds for the rehabilitation works in Kalemie would be transferred to Uvira and that some researchers from Uvira would be stationed on a rotation basis in a house to be rented in Kalemie.

12. It was further agreed that the project would purchase a microfiche reader-printer (about 6000 US dollars) to facilitate the collection and use (by the Project and other institutions and projects) of past publications on fisheries and related aspects of lake Tanganyika.

13. Dr. J. Kapetsky gave an up-date on the remote sensing equipment and programme. He also stressed the need to collaborate with other projects using the same techniques and briefed the Committees on the project's personnel situation and the problems related to the selection of suitable acoustical equipment.

14. Mr. M. Doeff gave an up-date on the problems related with the selection, purchase and refitting of a suitable research vessel for the Project as soon as possible (see Annex 7).

15. The Committee agreed on the need for close collaboration with other projects and institutions carrying out similar research on lake Tanganyika. In that perspective, Dr. L. Risch briefed the Committees on the general objectives and work programme of project Belgium/CEPGL, as given in Annex 8.

ITEM 7: PROPOSAL OF PROJECT'S SCIENTIFIC PROGRAMME

16.Dr. 0. Lindqvist presented the proposal of the Project's Scientific Programme as given in Annex 9. After a general outline of the research objectives, the aims (short- and long-term), methods, activities, International/Finnish contributions and the Intra- and Inter-Project coordination requirements of the six subcomponents of the research programme were presented and discussed.

Subcomponent 1 - Hydrodynamic modelling of Lake Tanganyika

17.It was agreed that this subcomponent represents the central part of the research activities to be carried out. All other subcomponents are complementary to the building of a hydrodynamic model for Lake Tanganyika.

Subcomponent 2 - Remote sensing.

18.Dr. J. Kapetsky briefed the Committee on the objectives, background and status of this subcomponent as given in Annex 10.

19. It was agreed that the Project would use the facilities available in Burundi to obtain the imagery or that the Project would have to purchase its own antenna system and receiver; and that the use of remote sensing techniques should be used for Lake Tanganyika, even after the end of the Project. Therefore, counterparts will have to be trained in the processing and interpretation of the remote sensing results.

Subcomponent 3 - Fish population and plankton biology

20.Members of the Committees observed that not only pelagic fish should be studied; that difficulties may arise in the determination of growth rings (although lunar cycles should be visible using Electron Microscopy); and that the results published by a Japanese team on growth studies should be considered by the Project.

21. Dr. 0. Lindqvist proposed that the research activities of this subcomponent should concentrate on activities that have never been done (and/or were poorly done) in the past.

22. It was agreed that the national counterpart staff of the four countries would be highly involved in the collection of past and present data related to this subcomponent.

Subcomponent 4 - Genetic structure of pelagic fish populations.

23.It was agreed that counterpart staff should be involved and

trained in these techniques and that close collaboration should be sought with researchers working on genetics in other projects.

24. It was observed that a Japanese team already published a paper on this subject. And it was agreed that meristic measurements of fish might be considered later if indeed different, discrete stocks of fish can be determined; and that local universities should be contacted to participate in this kind of research.

Subcomponent 5 - Limnology and Carbon/Energy Budget

25. It was agreed that the project should meet regularly with project staff of other projects (e.g. Belgium/CEPGL Project) executing common activities in these fields of research.

26. In that perspective, Prof. F. Ollevier of the Belgian Project gave an outline of their future research programme concerning food chain and limnology studies of the littoral fish species in the bay of Bujumbura (up to Uvira). He also stressed the need for close collaboration in the programme of taking samples and calibration activities for those fields of research where there is an overlap.

27. It was agreed that, since the preparatory phase is ahead of its schedule, everything should be done to start the scientific programme as soon as possible. Therefore, efforts should be made to have the scientific equipment, research vessel, etc. available soonest and to have the training programmes worked out and started as soon as possible.

Subcomponent 6 - Fisheries Statistics

28. It was agreed that special emphasis should be paid to the improvement of existing fisheries statistics and to the harmonization/standardization of future fisheries statistical systems in all four riparian states. The first steps will include an evaluation of historical fisheries data and a lake-wide frame survey. Fisheries statistics constitute an essential element in the study of several other subcomponents of the scientific research programme.

ITEM 8: DATE AND VENUE OF THE NEXT MEETING/S

29. It was agreedto organize also the next meeting as a Joint Meeting of the Coordination and International Scientific Committees in Kasaba Bay, Zambia, in September 1993 (if possible, to coincide with the next CIFA Subcommittee Meeting for lake Tanganyika).

ITEM 9: ANY OTHER MATTERS

30. Delegates were advised to try to obtain necessary visa in advance. For Burundi, in the case where no visa could be obtained in advance, the project should be notified well in advance in order to allow the Project to get the necessary permissions to obtain visa locally upon arrival in Burundi.

31. It was agreed that several options (incentives, SSA contracts, author's contracts, etc.) should be studied in order to encourage and motivate the counterpart staff of the project.

32. It was agreed that concrete proposals about training of counterpart staff would be worked out as soon as possible (on-the-job training, in-project training, training in Kuopio (Finland), training in Belgium, etc.). The Ambassador should be contacted to see if suitable candidates from Zaïre could be accepted for the M. **Sc.** training course in Finland.

ITEM 10: ADOPTION OF THE REPORT

33. The Coordination and International Scientific Committees adopted the report on 22 May 1992.

ANNEX l.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITTEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20 – 22 May 1992)

LIST OF PARTICIPANTS

BURUNDI

Mr. Antoine Kiyuku	Director	Ministère de l'Aménagement du Tourisme et Environnement Département des Eaux, Pêches et Pisciculture B.P. 631 Bujumbura, BURUNDI
Mr. Boniface Nyakageni	Conseiller	Ministère de l'Aménagement, du Tourisme et Environnement Département des Eaux, Pêches et Pisciculture B.P. 631 Bujumbura, BURUNDI

TANZANIA

Mr. T.W. Maembe	Chief Fisheries Officer	Fisheries Division Ministry of Tourism, Natural Resources and Environment P.O. Box 2462 Dar-es-salaam, TANZANIA
Prof. P. Bwathonde	Director-General	TAFIRI P.O. Box 9750 Dar-es-salaam, TANZANIA

ZAIRE

Mr. Sabuni Kasereka	Director	Service National de

		Développement de la Promotion de la Pêche B.P. 16096 Kinshasa 1, ZAÏRE
Dr. Gashagaza Masta	Chief of Research	CRSN - Uvira B.P. 254 Bujumbura, BURUNDI

ZAMBIA

Mr. G. Miudenda	Director	Department of Fisheries P.O. Box 350100 Chilanga, ZAMBIA
Dr. R. Mubamba	Chief Fisheries Research Officer	Department of Fisheries P.O. Box 350100 Chilanga, ZAMBIA

FINLAND

Prof. 0. Lindqvist	Project Scientific Coordinator	University of Kuopio P.O. Box 1627 SF-70211 Kuopio, FINLAND
Prof. H. Mölsä	Project Deputy Scientific Coordinator	University of Kuopio P.O. Box 1627 SF-70211 Kuopio, FINLAND
Mr. Joseph Kafurera	Director	IRAZ B.P. 91 Gitega, BUINDI
Dr. G. Ntakimazi	Director of Research	University of Burundi B.P. 1550 Bujumbura, BURUNDI
Mr. Kwetuenda Menga	Director	CRSN - Uvira B.P. 254 Bujumbura, BURUNDI
Mr. K. I. Katonde	Director	TAFIRI - Kigoma P.O. Box 99 Kigoma, TANZANIA
Dr. L. Risch	Project Manager	Project Belgium/CEPGL Bujumbura, BURUNDI

Dr. D. Gréboval	Coordinator	Project IFIP B.P. 1250 Bujumbura, BURUNDI
Prof. F. Ollevier	Scientific Coordinator Belgium/CEPGL	Department of Taxonomy & Animal Ecology Laboratory of Ecology & Aquaculture Naamsestraat 59 3000 Leuven BELGIUM
Dr. K. Martens	Scientist	Royal Belgian Institute of Natural Sciences Vautierstraat 29 1040 Brussels, BELGIUM

FAO

Mr. P.M. Biabatantou	FAO Rep. to Burundi	FAO B.P. 1250 Bujumbura, BURUNDI
Mr. M. Doeff	Senior Project Operations Officer	FAO, FIOA (F-324) Via delle Terme di Caracalla 00100 Rome, ITALY
Dr. J. Kapetsky	Senior Fishery Resources Officer	FAO, FIRI (F-232) Via delle Terme di Caracalla 00100 Rome, ITALY

SECRETARIAT

Dr. G. Hanek	Project Coordinator	Lake Tanganyika Research B.P. 1250 Bujumbura, BURUNDI
Mr. E. Coenen	Biostatistician	Lake Tanganyika Research B.P. 1250 Bujumbura, BURUNDI
Mrs. C. Van Miichel	Executive Assistant	Lake Tanganyika Research B.P. 1250 Bujumbura, BURUNDI

ANNEX 2

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20–22 May 1992)

ITEM 1: Opening ceremony and election of the Chairman

ITEM 2: Adoption of the agenda

ITEM 3: Work plan for the Project Preparatory Phase

ITEM 4: Terms of reference of the Project's Coordination Committee

ITEM 5: Terms of reference of the Project's International Scientific Committee

ItEM 6: Project Coordinator progress report

Item 7: Proposal of Project's scientific programme

ItEM 8: Date and venue of the next meeting/s

ITem 9: Any other matters

Item 10: Adoption of the report

ANNEX 3.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20 – 22 May 1992)

WORK PLAN FOR THE PROJECT PREPARATORY PHASE (18 MONTHS)

This Preparation Phase is essential for the preparation by the Project Coordinator of a detailed work plan (technical and scientific) for the entire project, with major inputs from the Scientific Coordinator, the International Scientific Committee, and consultants as required. It will however be important to allow for a flexible response by the proj ect to unforseen conditions or to interesting new opportunities and requirements for research during the execution of the project.

The principal activities to be initiated or undertaken during the Preparation Phase will be:

* establishing a single administrative headquarters in Bujumbura;

* establishing substations at Bujumbura, Kigoma, Mpulungu and Kalemie;

* establishing a Project Coordination Committee;

* establishing an International Scientific Committee

* confirming arrangements by beneficiary Governments for the free movement of project personnel, equipment and information between the research substations;

* securing a project-wide radio link system covering the substations, research vessel and some project vehicles;

* providing facilities for other interested researchers to carry out investigations that are integrated with the project's overall programme of research;

* organizing the first in-project training of identified

counterpart staff through the transfer of technological expertise from visiting experts and consultants, and through the planning of a continuous programme of seminars, workshops and short-term courses;

* providing a literature and information service (with the cooperation of the FAO Fisheries Library and the University of Kuopio) to all research workers and participants in the project;

* reporting regularly the progress of the project's work to the Donor and beneficiary Governments, and with their approval, to other research projects in the region as well as to other cooperating institutions and agencies;

* undertaking public relations and information exercises in order to keep the lakeside authorities and populations aware of the work of the project and its value for future fisheries exploitation and management;

* establishing project data banks at selected centres;

* collating and analyzing available historical data;

* initiating an analysis of available remote sensing data relevant to the overall limnology and hydrology of the lake; and

* organizing the procurement, delivery to the lake and subsequent commissioning of the fisheries research vessel needed for the main research programmes of the operational phase.

ANNEX 4.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20 – 22 May 1992)

TERMS OF REFERENCE OF PROJECT'S COORDINATION COMMITEE

GCP/RAF/271/FIN - Research for the Management of the Fisheries on Lake Tanganyika is a regional project, financed by FINNIDA and executed by FAO. The participating countries are: Burundi, Tanzania, Zaïre and Zambia.

Project Coordination Committee represents the interests of the countries collaborating in the project. It has an advisory and liaison function with respect to the programme of work and the relevance of these to the national policies of fisheries development. The committee also includes as observers or coopted members, representatives of funding agencies and other organizations that may be engaged in scientific research on the lake.

Chairman	:	to be chosen amongst the members
Permanent Members	:	Country Representatives, one from each of the four participating countries
Ex-Officio Members	:	Project Coordinator Project Scientific Coordinator FAO Representative in the country hosting the meeting Representative of FAO HQ (technical/Operational services)
Coopted Members/ Observers	:	Representatives from the funding agencies Representatives of interested research groups
Secretariat	:	Project staff, as directed by the Project Coordinator

The Project Coordination Committee should meet initially at least every six months. The Project Coordinator would also be expected to report on project progress to the CIFA Subcommittee for Lake Tanganyika whenever it meets.

ANNEX 5.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITTEE
***OF* PROJECT GCP/RAF/271/FIN**

(Bujumbura, 20 – 22 May 1992)

TERMS OF REFERENCE OF PROJECT'S INTERNATIONAL SCIENTIFIC COMMITTEE

Within the framework of the project an International Scientific Committee will be established and will report to the Project Coordination Committee.

The mandate of this International Scientific Committee is:

(a) planning, with the Project Coordinator, an appropriate scientific research programme, with possible annual revisions, within the limits of the available project budget;

(b) evaluating the scientific work carried out by the project and drawing conclusions and recommendations from the research results for appropriate action in fisheries management

(c) giving proposals for and planning of scientific training courses and seminars in the context of the project; and

(d) supporting scientific liaison and coordination with other fisheries or related projects, and with appropriate institutions and interested scientists in the area or outside Lake Tanganyika.

At first the Committee should comprise a minimum number of members but it should meet frequently. Subsequently the Committee may wish to coopt very experienced scientists, even from outside the project area, to assist in an independent evaluation of the project's scientific work programme.

The membership of the Committee will be:

- the Scientific Coordinator (Chairman)
- the Project Coordinator (Secretary)
- one member from each beneficiary Government
- one member from the Donor Government

Senior project personnel, such as the four national substation coordinators, may attend as observers when Committee meetings are held nearby.

ANNEX 6.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITEE
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20 – 22 May 1992)

PROGRESS REPORT *OF* PROJECT COORDINATOR

l. INTRODUCTION

This project became functional late last year by fielding consultancies of Pieroni and Reynolds and by two separate visits to Burundi and Tanzania by Project Coordinator designate. It became fully operational on 03.01.1992 when Project Coordinator took up posting in Bujumbura.

The initial project's Work Plan was proposed in December 1991 (GCP/RAF/271/FIN/TRAM/02 refers) for the first six months of 1992. This plan followed closely the one which is given in Annex 3 (see also page 28 of Project Document) for the entire project Preparatory Phase. The following sections detail the status of principal activities planned for in Project Document which were undertaken during the period of January to mid-May 1992.

2. RESULTS

2.1 Establishing a single administrative headquarters in Bujumbura

Following Pieroni's recommendation all required actions were taken to construct project's headquarters. All necessary permits were obtained in record time and the construction itself started on 08.01.1992. Exactly four months later the project's staff was able to start working in the newly constructed premises. In addition, 56 m^2 storage/depot facilities were secured for project by partitioning and completing the existing facilities of Fisheries Department. Lastly, a 10 car parking was constructed.

2.2 Establishing substations at Bujumbura. Kigoma, Mpulungu and Kalemie

Substation in Bujumbura has been already completed simply because it is a part of project's headquarters; a laboratory together with documentation center and offices are part of newly constructed headquarters.

During Project Coordinator first visit to Kigoma (15-20.01.1992) all necessary arrangements were made to start the extensive rehabilitation of TAFIRI facilities. Subsequently, the required administrative arrangements were completed on 28.01.1992 and project's civil engineer joined the project officially on 01.02.1992. The rehabilitation of TAFIRI facilities started during Project Coordinator's second visit to Kigoma (06-07.02.1992). Rehabilitation of TAFIRI offices, laboratories, guest-house and house for project's expert has been now completed. Both the office/laboratory complex and guest-house + house for expert have been fenced. It should be noted that the rehabilitation of TAFIRI facilities has been completed within the allocated budget. Lastly, an exceptional work by project's civil engineer in Kigoma is now officially acknowledged.

Department of Fisheries facilities in Mpulungu were visited in the beginning of March, 1992 (01—10.03.1992). Rehabilitation needs were specified and sites for new laboratory/office and houses decided on. In all there are 8 distinct tasks as follows: (1) rehabilitation of guest-house, (2) construction of two B/32 houses, (3) construction of laboratory/office block, (4) reparation of water pump, (5) reparation of jetty, (6) painting of existing buildings, (7) reparation of electrical system, and (8) fencing the whole property. Although all necessary arrangements were made in early March, only one of three promised tender offers was received, only last week. As it virtually doubles the available budget an alternative solution will have to be taken by this Committee.

With regard to location of project's substation in Zaïre the situation is as follows. The Project Document calls for establishing of a substation in Kalemie by constructing of office, laboratory and guesthouse and for modest renovation of CRSN station in Uvira. Due to existing political situation in Zaïre and particularly in Kalemie an alternative solution should be taken. During Project Coordinator' visits to Uvira (29.01.1992), to Kinshasa (15-18 • 04.1992) and to Kalemie (06.05.1992) different options were discussed with the authorities and/or concerned parties. It would appear that the most logical option is to reallocate the available funds so that the most urgent
rehabilitation works of CRSN/Uvira could be carried out and use the rest to rent FILTISAF premises (some rehabilitation will be

needed) in Kalemie. This way the project could have presence in very important point i.e. Kalemie and the advantage of research oriented personnel of CRSN/Uvira. It was agreed that CRSN/Uvira would provide 2-3 scientists/technicians for Kalemie, on rotation basis. This way they can reinforce SENADEP personnel in the zone i.e. one agent already in post in Baraka and the other already named for Kalemie. The Committee decision is needed before rehabilitation works can start and before commitment to FILTISAF can be made.

2.3 Establishing a Project Coordination Committee

The terms of reference of Project Coordination Committee were given in Annex V of Project Document and are provided now as Annex 4.

During Project Coordinator visits a request has been made so that country representatives i.e . our Coordination Committee permanent members are named by their respective Governments. This has been done in all participating countries. At the time of preparation of this report it was confirmed that all Ex-Officio members previewed in Project Document will be present. Project Coordinator proposed to FAO Headquarters to also approve the participation of Directors and/or Officer-in-Charge from substation of Kigoma, Uvira and Mpulungu; all of these will participate as observers. These will be reinforced by representatives of interested research groups, particularly those representing Belgium/CEPGL applied hydrobiology project, which just became operational .

2.4 Establishing an International Scientific Committee

The terms of reference of Project International Scientific Committee were given in Annex VI of Project Document and are provided now as Annex 5.

Similarly to the nomination of permanent members for Project Coordination Committee, Project Coordinator sought and received the official nomination from each beneficiary Government. Since the Chairman and Secretary participation is assured it remains to be seen if the Chairman coopts any other person/s .

2.5 Confirming arrangements by beneficiary Governments for free movement of project personnel , equipment and information among the research substations

One of the main objectives during all visits was to call to the attention of all the essential requirement of this project i.e. the free movement of personnel , equipment and information among the research substations . After exhaustive inquiries in all four countries it would seem that free movement of personnel and information should not pose any problem. The only problem will be with regard to free movement of equipment among substations since the capitals and thus the authorities of three countries are between 1,000 and 2,000 km away. Consequently, the only way to handle this problem is to have detailed lists of equipment which will be used in other substations and use FAO Representation in Tanzania, Zambia and Zaïre to obtain the necessary clearances.

2.6 Securing a project-wide radio link system covering the substations and research vessels

Extensive inquiries have been made and the most appropriate High Frequency SSB radio selected and already ordered. Its installation, particularly in Tanzania, will require license request, etc. In other countries the procedure should be easier.

2.7 Providing facilities for other interested researchers to carry out investigations , etc .

The project, although preoccupied by other tasks, has already responded to number of inquiries, etc. , offering project facilities and/or cooperation. Specifically, it assisted with student recruitment for the M.Sc. Programme in Fisheries at the University of Kuopio, offering project facilities to those eventually selected. Further contacts were made with University of Wales (genetics of *Limnothrissa miodon*), IAC and particularly with Dr. Luc Risch, Project Manager of Belgium/CEPGL hydrobiology project which just became operational .

2.8 Organizing the first in-project training, seminars, workshops, etc

For obvious reasons this aspect has not yet been considered. Nevertheless, the necessary steps will be taken shortly to organize the first Workshop on Harmonization of Fisheries Statistics in the second half of this year. Maximum use should be made of local knowledge, experience and particularly of both international and national personnel of BDI/90/002 .

2.9 Providing a literature and information service to all research workers and participants in the project

Project's first consultant suggested that project collaborates with all others (projects IFIP, Belgium/CEPGL, University of Kuopio, FAO Fisheries Library, etc) in developing a Regional Fisheries Documentation Center. All necessary steps have been already taken to establish this Center without delay .

2.10 Reporting regularly the progress of the project's work to the Donor and beneficiary Governments, etc.

Appendix 1 details all Travel Reports prepared by Project Coordinator during the last six months. Further, regular up-dates and supporting memorandums were prepared for Project Scientific Coordinator, Project Operation Officer and Project Subject Matter Officer.

2.11 Undertaking public relations and information exercises, etc

Project logo and flag were designed and will be widely used to establish project identity. Further, initial steps were taken to organize the publication of project's Newsletter. Its first issue should be appearing shortly.

2.12 Establishing project data banks

For obvious reasons this aspect has not yet been treated.

2.13 Collating and analyzing available historical data

Project's first consultant has started this task. Nevertheless , due to large quantity of historical data, he was not able to complete it. Consequently, Project Coordinator organized more than 20 national scientists around the lake to collate all available data and secure them for the project.

2.14 Initiating an analysis of available remote sensing data, etc

Dr. Kapetsky, Senior Fishery Resources Officer, has been dealing with this aspect and will thus report on it to the Project Committees (Annex 10 refers).

2.15 Organizing the procurement, delivery to the lake of the research vessel

Mr . Doeff , Senior Project Operations Officer , had to deal with this difficult aspect and will report on it to the Project Committees (Annex 7 refers).

2.16 Aerial frame survey of Lake Tanganyika

Initial trial is planned for 29.05.1992; suitability of video equipment and that of the plane will be tested. If the results are satisfactory the entire lake's coastline will be covered beginning of June , 1992 .

2.17 Personnel

As stated earlier Project Coordinator's effective starting date was 03.01.1992. Recruitment of the second international expert has been finalized last week; consequently, project's biostatistician Mr. Eric Coenen effective starting date is 14.05.1992.

The recruitment of local staff has been effected as follows:

Mr. H. Mafurugutu, project's driver, on 22.01.1992 (note: after three months of extremely satisfactory service FAO contract has been proposed recently);

Mr. T. Varayannis, project’s civil engineer, on 01.02.1992 (note:
engaged under SSA-National expert to supervise TAFIRI rehabilitation);

Mrs. C. Van Michel, project’s executive assistant, on 06.04.1992, on three months probation period;

Ms. B. Baricako, project’s secretary, on 14.05.1992, on three months probation period; and

Ms. M. Bankumuhari, project’s receptionist, on 14.05.1992, on three months probation period.

LIST OF PUBLICATIONS

Reynolds, J.E. , Towards a regional information base for Lake Tanganyika research. FAO/FINNIDA Research for the Management of the Fisheries on Lake Tanganyika. **GCP/RAF/271/FIN/TD/01 (En) :120 p.**

Reynolds , **J.E.** , A travers une base d'information régionale pour l'étude du lac Tanganyika. FAO/FINNIDA Recherche pour l'Aménagement des Pêches au lac Tanganyika. **GCP/RAF/271/FIN/TD/01 (Fr): 126 p.**

PROJECT COORDINATOR' DUTY TRAVEL

DATES	DESTINATION	REFERENCE
25.10— 01.11.91	Bujumbura and Dar-es-salaam	GCP/RAF/271/FIN/TRAM/0l
22.11 — 01.12.91	Bujumbura	GCP/RAF/271/FIN/TRAM/02
15 — 20.01.92	Kigoma	GCP/RAF/271/FIN/TRAM/03
29.01.92	Uvira	GCP/RAF/271/FIN/TRAM/04
06 — 07.02.92	Kigoma	GCP/RAF/271/FIN/TRAM/04
26 — 29.02.92	Dar-es-salaam	GCP/RAF/271/FIN/TRAM/05
01 - 09.03.92	Lusaka and Mpulungu	GCP/RAF/271/FIN/TRAM/05
31.03— 03.04.92	Kigoma	GCP/RAF/271/FIN/TRAM/06
15 — 18.04.92	Kinshasa	GCP/RAF/271/FIN/TRAM/07
06.05.92	Kalemie	GCP/RAF/271/FIN/TRAM/07

ANNEX 7.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITTEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20–22 May 1992)

NOTE ON THE ACQUISITION OF THE PROJECT RESEARCH AND AUXILIARY VESSELS

The Lake Tanganyika Fisheries Research requires a properly equipped modern fisheries research vessel for a large proportion of its scientific programme. Such a vessel is currently not available in one of the countries bordering the Lake, nor in the neighboring lakes.

There are three options to acquire the vessel . The first , most expensive option is to build a new boat costing upon $ 500,000 , which the project can't afford. The second is to locate an existing research vessel outside the area and to transport it to the Lake. The last option is to find a local ship designed for different purposes and to modify it so that it can be used for the large variety of research tasks which the project has to undertake. For each alternative an amount of $ 300,000–$ 350,000 is involved.

The original plan was to transfer an FAO research vessel from India to Bujumbura. There were several reasons why this plan was discarded, the most important being that the boat in India is made from fiberglass , which is a material for which there are no known repair facilities on Lake Tanganyika.

The current alternative is a locally available vessel, presently called the MATHIEU FAO fielded a consultant Naval Architect in April/May to survey this vessel . His detailed report confirmed that in addition to the $ 80,000 required purchase , the vessel would cost another $ 270,000 for overhaul and modification to a research vessel . But this includes the cost for on-board auxiliary engines , equipment , winches , etc . which are currently missing. To this figure another important amount needs to be added for the acoustic and scientific equipment and for the fishing gear that the project buys separately, and for four smaller auxiliary vessels for use close to the various project research stations .

If FAO decides to acquire and to refit the MATHIEU, a contract has to be concluded with one of three yards in Bujumbura. The report of the Naval Architect mentions that in principle a total of over 10,000 man hours at the equivalent of $ 6 per man hour is required to perform that task in Bujumbura. Such a contract will be drawn up after a tender procedure whereby the yard offering the most favorable conditions is selected. Once signed, the conditions are expected to remain in force. Modifications to the contract specifications , such as to the time table and the cost calculated will involve a contract revision at FAO headquarters in Rome, which is a complicated and time consuming procedure, and the revision is not necessarily always granted.

Modification and refitting the MATHIEU apart from being lengthy involves a certain risk. For acoustic work it is essential that the boat is silent; that the noise of the engine, propeller and the shape of the hull when passing t.hrough the water will not interfere with the acoustic signals . To reduce the risk of interference, FAO has recruited a consultant to examine the performance of the acoustic equipment it will buy as it is used by a similar project in Malawi , and to estimate if the MATHIEU, once ready is likely to be a sufficiently silent boat. The consultancy is delayed on account of the political situation in Malawi , but will hopefully proceed within the near future .

Investment in vessels is a major undertaking. FAO will handle this issue with great caution.

ANNEX 8.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENITIFIC COMMITTEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20 – 22 May 1992)

PRESENTATION OF PROJECT BELGIUM/CEPGL

Regional research project in applied hydrobiology of
Lakes Tanganyika, Kivu, Mobutu and Bugesera

A special agreement. between Belgium and CEPGL concerning this project. has been signed on 14.12.1991 in Bujumbura. Its first phase started on 30.04.1992 for the period of four years . During this period the project will work in the North of Lake Tanganyika (Bujumbura-Uvira) , in several lakes of Bugesera and, towards the end of its first phase, on Lake Kivu.

The project is executed by Belgium and IRAZ (Agronomic and Zootechnic Research Institute of the CEPGL . Six professionals (3 from Belgium and 3 from IRAZ) will coordinate the scientific activities . The budget for the project first phase is 53,600,000 FB.

The main project objectives are to develop research activities and to train the nationals . The research activities will concern biological studies of fish species (identification , growth, reproduction, food studies , parasites) , water chemistry and bromatological studies . The project center will offer visiting scientists its library which will contain all pertinent publications on Lake Tanganyika and other lakes of the CEPGL. This library could be strengthened by other projects active in the region. Lastly, in cooperation with the Royal Museum for Central Africa a collection of references of different species of the lakes will be established.

The project’s scientific programme will be coordinated by the Catholic University of Louvain and assisted by University of Anvers and Royal Museum of Central Africa. During its execution the project will collaborate with the existing institutions (projects , research institutes , universities and fisheries departments) .

These institutions will participate in the execution of project’ scientific programme and could benefit from the projects materials and equipment. It. is also planned that students and/or scientists from the region will take advantage

of this project by choosing their research projects in coordination with the project.

These institutions will participate in the execution of project’s scientific programme and could benefit from the projects materials and equipment. It is also planned that students and/or scientists from the region will take advantage of this project by choosing their research projects in coordination with the project.

ANNEX 9.

FIRST JOINT MEETING
OF
THE COORDINATION AND INTERNATIONAL SCIENTIFIC COMMITTEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20–22 May 1992)

SCIENTIFIC PROGRAMME PROPOSAL

LAKE TANGANYIKA FISHERIES : GENERAL

l. To develop understanding of the basis of biological production in Lake Tanganyika:

- through building a hydrological model with special emphasis on upwelling/downwelling phenomena;

- through basic limnological measurements of the primary and secondary production, with special account of the dissolved organic matter (DOM) and, partly, of bacterial activity, in the lake, and their contribution to overall lake productivity; and

- by remote sensing technology to monitor lake events;

2. To develop understanding of the basis of fish production in the lake, i.e. how matter and energy are channelled through the food web to fish:

- through stock assessment of pelagic fish;

- through studies on predator-prey relationships between fish and plankton, with special emphasis on daily/lunar vertical movement of the ecosystem components;

- through studies of life cycles of plankton and fish, and relating them to place and tiime/lunar cycles/seasons.

3. To develop understanding of the fish stock functions that could contribute to the development of a coherent, lake-wide fisheries management policy for the four riparian countries so that the full potential of the biological/fish production can be utilized on a sustainable basis:

- in addition to the studies above, e.g. by genetic population studies indicating the degree of discreetness (in time and place) of the pelagic fish stocks in different parts of the lake;
- by collating and processing the existing fisheries statistics and relating that experience to lake events and fisheries structure and harmonizing their future collection as important. prerequisitive for formulation and monitoring the success of management policies .

4. To contribute to the harmonization of the fisheries and environmental laws and regulations that support and maintain such policies.

5. To strengthen the scientific and monitoring capabilities and capacities of the four riparian countries so that they are able to sustain an adequate amount of monitoring/research of their fishery resources after termination of the project.

SUBCOMPONENT 1

HYDRODYNAMIC MODELLING OF LAKE TANGANYIKA

AIMS:

Short-term:

1) Understanding the lake’s hydrodynamic and thermodynamic regimes .

2) Understanding the basis upwelling/downwelling phenomena and their relationships with the lake’s primary/secondary production.

Long-term:

1) Predictive model for upwelling and its effects on lake’s primary and secondary production as a possible tool for long-term fisheries management.

METHODS:

1) Land—based and water—based meteorological measurements

2) CTD(O) profiles for the lake (especially at both ends)

3) Observe changes in lake levels and find records of in- and

out-flows of water

4) Water current measurements during cruises , where appropriate and feasible

5) Complement and verify lake events by remote sensing

6) Computer model (alternative models) for lake's hydrodynamic behavior; predictions for field and remote sensing; reformulate the model if necessary

ACTIVITIES:

1) Fstablish measuring stations
   - on land: meteorological stations
   - in lake: thermistors anchored current meters
   - aboard the research vessel

2) Through the cruises and coordinated synoptic observations of lake hydrodynamics , obtain database for formulation of the hydrodynamic model;

3) Use remote sensing to observe and verify lake-wide events , particularly temperature and water color;

4) obtain sufficient computer capacity for both the model building and remote sensing operations

INTERNATIONAL CONTRIBUTION

1) Programme planning

2) Counterpart training

3) Participation in the execution of the programme

4) Model formulation and testing

IN-PROJECT COORDINATION

1) Remote sensing

2) Limnological subcomponent

3) Possible pollution studies

INTER-PROJECT COORDINATION

Other regional and subregional projects dealing with fish and fishery, water quality and pollution studies.

SUBCOMPONENT 2.

REMOTE SENSING (see Annex 10)

SUBCOMPONENT 3.

FISH POPULATION AND PLANKTON BIOLOGY

AIMS:

Short-term:

1) The seasonal and spatial growth pattern of *S . tanganicae* and *L. miodon*

2) Reproduction biology (fecundity larvae) of pelagic species

3) Zooplankton (= fish food) production and interaction with fish predation

4) Food selection by planktivorous fish

5) Vertical migration of crustacean zooplankton.

Long-term:

1) Understanding of spatial and seasonal dynamics of pelagic production; channeling the primary production towards fish

2) Practical monitoring programme for pelagic fish stocks with emphasis on fish-environment and fish-fishing relationships

METHODS:

1) Fish growth rates

2) Bioenergetics model of fish and their prey

3) Fish fecundity

4) Surveys of larval fish

5) Zooplankton life-cycles and migration

ACTIVITIES .

1) Sampling of fish and zooplankton

2) Fish population analysis

3) Surveys of larval fish

4) Intensive zooplankton studies

5) Development. of monitoring strategy

INTERNATIONAL CONTRIBUTION

1) Working programme

2) Counterpart training

3) Specific analyses (EM, models)

IN-PROJECT COORDINATION

1) Hydrodynamic modelling

2) Hydroacoustic surveys (fish, zooplankton)

3) Experimental fishing

4) CPUE statistics

5) Satellite limnology

6) General management policy

INTER-PROJECT COORDINATION

Lake Tanganyika hydrobiology project/Belgium/CEPGL
Lake Malawi/ODA
Lake Pyhäjarvi/Finnish Academy

SUBCOMPONENT 4

GENETIC STRUCTURE *OF* PELAGIC FISH POPULATIONS

AIMS

Short-term:

Genetic differentiation between local populations of pelagic fish species

- *S . tanganicae*
- *L. miodon*
- *Lates* spp. (4)

Long-term .

Part of management.

METHODS

Sampling in subareas
Electrophoretical study
RAPD-DNA method

ACTIVITIES

Fish sampling and identification

INTERNATIONAL CONTRIBUTION

1) Working programme

2) Counterpart training

3) Specific analyses

IN-PROJECT COORDINATION

1) Hydroacoustics

2) Fishery statistics

INTER-PROJECT COORDINATION

1) Lake Malawi Proj ect/ODA

2) Biodiversity Programme

SUBCOMPONENT 5 .

LIMNOLOGY AND CARBON/ENERGY BUDGET

AIMS:

Understanding the components of primary and secondary production and energy sources of pelagic food chains in different parts of the lake, with a special focus on the fishery effects on ecosystem structure and functions .

METHODS:

1) Determination of primary, microbial and microheterotrophic production in the lake.

2) Determination of the microbial communities and their contribution to energy production .

3) Determination of the dissolved organic matter (DOM) .

4) Determination of the sinking loss of organic matter from the ecosystem (water column) .

ACTIVITIES

1) Do the above measurements of primary, bacterial , (and secondary)production, especially in relation to the hydrodynamic events in the lake (cf. the hydrodynamic model) .

2) Formulation of a comprehensive and dynamic carbon/energy budget. model for the lake that incorporates the effects of fishery in the different parts of the lake.

INTERNATIONAL CONTRIBUTION:

1) Participation in programme planning.

2) Counterpart training.

3) Participation in the execution of the programme .

IN-PROJECT COORDINATION:

1) Fishery statistics.

2) Fish biology and predator-prey relationships .

3) Zooplankton studies .

4) Hydrodynamic modelling.

5) Remote sensing.

6) Possible pollution studies .

SUBCOMPONENT 6.

FISHERIES STATISTICS

AIMS:

Contribute to the understanding of lake events and fish stock functions (see others subcomponents) , in order to be able to formulate and monitor successful management strategies for Lake Tanganyika and to establish an economic basis for future, optimum resource conservation, exploitation and management.

METHODS:

l. Compilation of past. and present. data concerning fisheries statistics in project databank/docunentation center;

2. Quality checks of past and present fisheries statistics;

3. Improvement and standardization of existing statistical data collection, processing and analysis methodologies;

4. Upgrading of local staff skills in fisheries statistics;

5. Precise estimates of local and lake-wide catch/effort and CPUE figures;

6. Integration of above estimates with scientific results from other subcomponents .

ACTIVITIES

l. Oversee the collection, collation and evaluation of fisheries statistics data arising out of all previous studies;

2. Estimate present local and lake-wide landings of fish together with regular census on the numbers of fishermen, boats , etc . (nominal fishing effort);

3. Assessment of training needs; organization of training activities for national staff involved in the collection and analysis of fisheries statistics ,

4. Organize the collection of precise catch-per-unit-effort (CPUE) data from selected locations (fishing mortality or

effective fishing effort);

5. Coordination/standardization of methodologies in fisheries statistics data collection, analysis and presentation; organize a Workshop on Statistical Coordination and Standardization;

6. Reporting on above activities .

INTERNATIONAL CONTRIBUTION

1) Programme planning and participation in its execution

2) Data quality assessment and methodology improvement

3) Counterpart training

4) Coordination/standardization

IN-PROJECT COORDINATION

1) Limnological st.udies

2) Genetic studies of pelagic fish populations

3) Fish population and plankton biology

INTER-PROJECT COORDINATION

Other national (in the four riparian countries) and subregional projects dealing with fisheries statistics and related research.

ANNEX 10.

FIRST JOINT MEETING
OF
THE COORDINATION AND SCIENITIFIC COMMITTEES
OF PROJECT GCP/RAF/271/FIN

(Bujumbura, 20—22 May 1992)

REMOTE SENSING PROGRAMME

I. OBJECTIVE

The objective is to obtain lake-wide measurements of surface
temperature and chlorophyll .

II. BACKGROUND

One of the inadequacies of earlier research on the lake was that measurements were not. comprehensive in time and space. Satellite remote sensing offers the possibility to acquire such measurements of temperature and chlorophyll . In effect , the satellite can be used to acquire some 30,000 measurements several times per day, each one for a 1 km^2 area. Both of temperature and chlorophyll are important. for understanding the dynamics of the lake. Temperature differences can be used to locate and estimate the intensity of upwelling. Chlorophyll is indicative of primary production and the measurements could be used to estimate seasonal and inter-annual changes in primary productivity. Ultimately, it may be possible to relate such estimates to fish production.

III. STATUS OF THE REMOTE SENSING PROGRAMME

The status of the remote sensing programme can be viewed in two ways. The first is the feasibility of acquiring temperature and chlorophyll estimates through processing of satellite images . The second is selecting and installing the equipment to receive and process the satellite data.

A. Technical Feasibility

The project is fortunate in that the UK Natural Resources Institute is developing satellite remote sensing for the ODA/SADCC Lake Malawi project. In effect, NRI, in cooperation with the University of Kuopio, is doing the research on technical feasibility and will turn over the results to our

project.

At this time, a satellite receiving station has been installed at the project heaquarters on Lake Malawi . Relative temperature can be measured to within 0.4 C and research is continuing on improvement of absolute temperature measurements . Despite problems caused by cloud cover , we can be reasonably sure that we will be able to acquire useful temperature measurements for Lake Tanganyika at the critical time during the dry season in the S portion of the lake .

The feasibility of acquiring chlorophyll has yet to be determined. Although chlorophyll has been estimated elsewhere, the relatively low productivity of Lake Tanganyika may make this difficult . As with the temperature studies, research is going ahead on Lake Malawi and the outlook is optimistic.

The project remains in close contact with NRI , the University of Kuopio and the Lake Malawi project in order to monitor progress and to refine our estimates of the utility of remote sensing for the project.

B . Remote Sensing Equipment

In order to plan and execute its research and to better interpret the results of the limnology and hydroacoustic programmes , the project requires real-time access to satellite imagery . Also , the project has to have the capacity to process the imagery for temperature and chlorophyll . This can be accomplished in a number of ways . One way is to purchase the imagery from a receiving center such as in Nairobi and to have it sent by telephone line to the project. More convenient would be to acquire the imagery from the Burundi Meteorology Department which is now being pursued by the project. Another solution is to acquire a low-cost receiving station such as that developed by ODA for about $30,000 . For the processing of the images , the project needs only the software which is in the public domain and a PC that also can be used for other purposes .

IV. TIMING

The remote sensing should be operational for testing purposes at the time the limnology programme begins and it should be fully functional by the time the hydroacoustic surveys begin.