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Working document

THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

TECHNICAL ADVISORY COMMITTEE

Forty-Ninth Meeting, Rome (Italy), 19 - 24 June 1989

REPORT OF THE TAC FACT-FINDING MISSION TO THE INTERNATIONAL TRYPANOTOLERANCE CENTRE (ITC)

TAC SECRETARIAT

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

May 1989

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TAC FACT-FINDING MISSION TO THE

INTERNATIONAL TRYPANOTOLERANCE CENTRE (ITC)

(Banjul, The Gambia, 1-6 May 1989)

1. BACKGROUND

Growing awareness of the high costs and the environmental implications of classical control measures for trypanosomiasis has led to increasing interest in the potential of trypanotolerance in livestock production. ILCA and FAO, with support from UNEP, undertook an extensive study of trypanotolerant livestock in Africa during the mid- and late-seventies. The results were published separately by ILCA (1979), and FAO (1980). Then ILCA in collaboration with ILRAD initiated plans for the African Trypanotolerant Livestock Network in 1981. The network became operational in 1983.

The Rockefeller Foundation sponsored a meeting at Bellagio in 1981 to discuss trypanotolerance in livestock. The meeting was chaired by the President of The Gambia and was attended by leading scientists with wide working experience in Africa. The main objective of the meeting was to review the potential of the N'Dama breed of cattle (Bos taurus) found in West Africa. This breed has displayed a high degree of tolerance to trypanosomiasis for centuries, and there is an estimated 4.9 million N'Dama cattle in West Africa, of which 20% are found in Senegal and The Gambia.

The meeting recommended that an international effort should be mounted to improve the productivity of trypanotolerant livestock in West Africa. Consequently the idea of establishing the International Trypanotolerance Centre (ITC) was launched. The Government of The Gambia agreed to provide land and infrastructure for the Centre, through a loan of US$ 10 million provided by the African Development Bank (ADB). The loan was given on condition that donors would be forthcoming with resources to support the research effort.

About US$ 6 million were used for the construction of the Centre, including two field stations. The rest was used to support livestock production research activities. Financial support for research was obtained from a number of donors (Table 5.3, p. 16).

ITC was created in 1982 as an autonomous, non-profit organization with legal status in The Gambia. The headquarters are located at Kerr Seringe near Banjul. The Centre has two other campuses at Keneba and Bansang, each 160 km apart, but all sites are connected by good roads and radio communications.

The charge to the Centre is to exploit trypanotolerance for agricultural, commercial and food production purposes and to conduct research. ITC has the following specific objectives:

- establish a high quality research organization for the purpose of increasing the production and improving the quality of livestock in the tropics;

- cooperate with universities and other research institutions engaged in the enhancement of trypanotolerance in livestock and in providing professional and mid-level personnel training for institutions concerned with the production and improvement of livestock in the tropics;

- publish and disseminate research findings for the benefit of other institutions concerned with the control of trypanosomiasis and the production and improvement in the quality of livestock; and

- distribute improved livestock to other research centres or countries where such livestock is needed for breeding or for improvement programmes.

ITC considers its main clients to be the village farmers of West and Central Africa. National livestock research programmes in the tsetse infested areas of sub-Saharan Africa are seen as collaborators rather than clients of ITC.

2. THE CENTRE PROGRAMME

2.1. Strategy

ITC does not have as yet a strategic planning process and no strategic plan that is approved by the Council. This, however, does not imply that there is no strategy underlying the programme of work. This strategy aims at a better exploitation of the N'Dama breed of cattle to enhance animal production in the vast area of Africa, that is now practically without cattle and to abate the risk for 50 million cattle in the border regions of this area. The direct and indirect losses due to trypanosomiasis are undoubtedly very high.

According to ITC, there are three main constraints on the control of this disease: no vaccine, few drugs and no environmentally acceptable and proven methods of controlling the tsetse fly.

ITC considers the N'Dama breed as an answer to these constraints since it is genetically tolerant to the disease, can be managed in an environmentally acceptable manner, and may be economically productive in spite of its relatively small size.

During the first years of its existence, ITC has found that the variability of trypanotolerance within the N'Dama breed is small, so that no attempts are made to improve tolerance by selection. On the other hand, there is no reason why the N'Dama cattle should not respond to breeding for productivity. Under present farming conditions N'Dama cattle suffer more at higher levels of challenge by tsetse. However, well fed N'Dama cattle appear to be so trypanotolerant that they produce normally even in heavily infested tsetse areas.

Based on such findings, ITC has adopted a three-pronged approach towards a better utilization of the resource of trypanotolerance of the N'Dama breed: the breeding for better dual purpose (milk/meat) animals by conventional pedigree methods, improving the husbandry of the mixed farming systems to increase the quality and quantity of food for the animal and reducing the challenge of the tsetse fly. The differences in trypanotolerance between such breeds as the N'Dama, the West African Shorthorn and the non-trypanotolerant Zebu also require further analysis.

2.2. Implementation

To implement its strategy, ITC does applied research both at the village and station level, as shown in Figure 1. The emphasis of research at the station level is on improving productivity through breeding and better nutrition and at the village level on reducing disease level by controlling tsetse and by better nutrition. The organization of research tends to reflect the sources of funding: the ODA-supported entomology project; the EC-supported project on the productivity of N'Dama cattle in Senegal and The Gambia implemented with the support of ILCA and ILRAD; the ADB-financed livestock development project; and the University of Berne's helminthiasis project.

In addition, adaptive research at the village level is considered necessary to achieve impact. This research is done in close collaboration with The Gambian Department of Livestock Services. During the 1990s the work will be extended to other countries in West and Central Africa, most probably within the framework of the Trypanotolerance Network.

2.3. Research Programmes

2.3.1. Animal Diseases

This is the largest programme. Its activities were started 3 1/2 years ago with the implementation of the EC project.

The main objectives of the programme are to collect data on animal disease and productivity in the context of the African Trypanotolerant Livestock Network (the Network) in Senegal and The Gambia, and to conduct detailed studies on the productivity of N'Dama cattle at village level through on-farm research methods.

The activities closely follow the Network's protocols, with the exception of the entomology component. The studies on the productivity of N'Dama cattle at village level have centred on reproduction, nutrition and milk production.

The programme monitors 4,000 animals in ten villages in The Gambia and Senegal on a monthly basis and a much larger number of animals on a three to six months basis with respect to performance and disease status. Herd dynamics and the female reproductive cycle are also being studied.

RESEARCH TEAMS

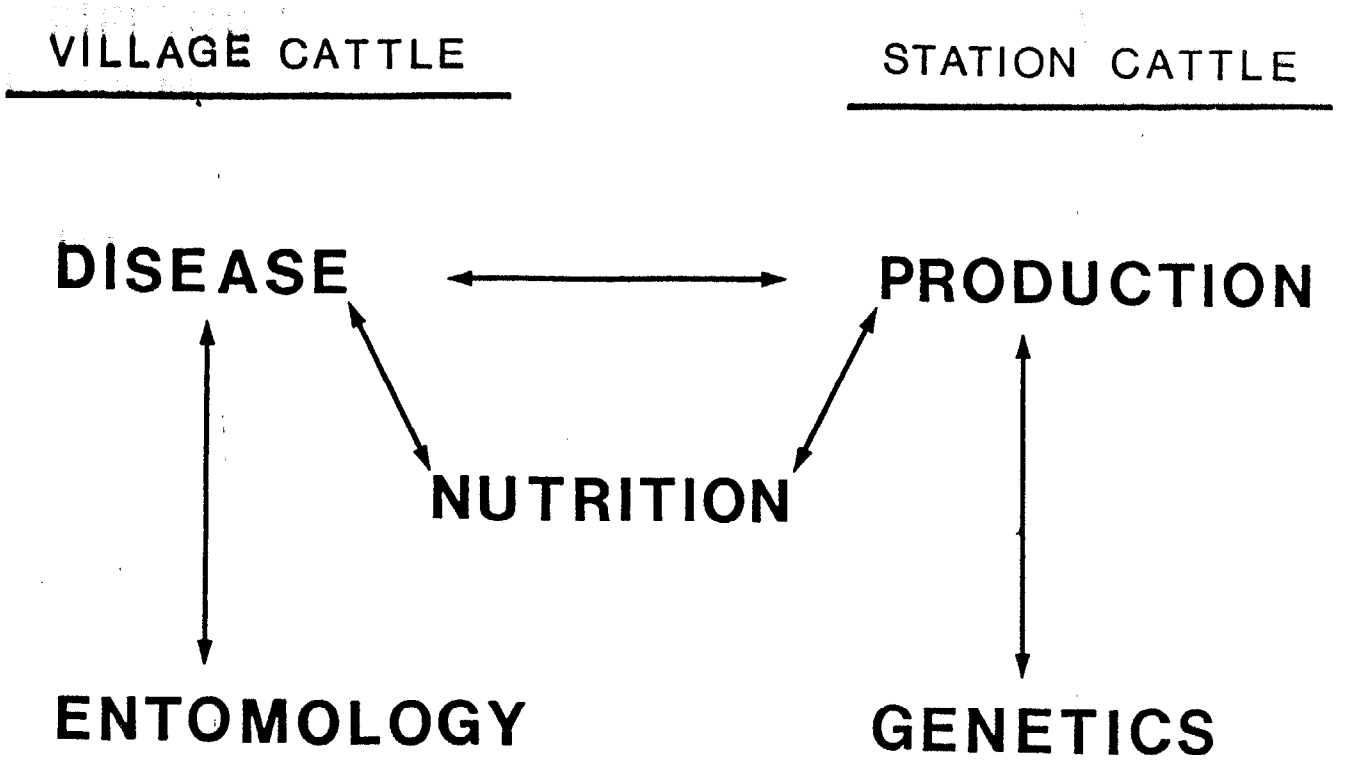


Figure 1.

The following main results have been obtained: the prevalence of trypanosomiasis has been estimated for areas of low, medium and high tsetse challange, and a tendency for a decreasing trend in this prevalence was recorded; the interactions between the health status and productivity were studied and the relationship between trypanosomiasis and age classes and the nutritive status of animals was established; demographic and production parameters were quantified and the potential of the N'Dama as a dual-purpose breed was shown; the potential response to feed supplementation in relation to calf growth, milk yield and calving rate was demonstrated.

The programme will complete four years of data collection in villages in accordance with the Network protocol. It plans to implement studies of N'Dama and Zebu productivity and health to evaluate further their relative susceptibility to trypanosomiasis; continue the study of disease x environment (nutrition) and disease x disease interactions; proceed with the analysis of the data collected to date; investigate the causes for higher productivity in subpopulations of the sampled herds; and introduce a socio-economic input in the research programme.

2.3.2. Animal Nutrition

The objectives of the programme are to increase the efficiency of cattle production in African small holdings and the sustainability of low-input animal production systems, with emphasis on disease resistance of the N'Dama cattle and crop/livestock interactions.

Feeding trials were carried out under village conditions to evaluate the response of lactating cows to supplementary feeding of industrial by-products such as groundnut cake and rice bran.

A limited number of legume species from CIAT and ILCA were screened. Rotational grazing schemes were introduced on grazing land unsuitable for cropping.

As expected, protein is a limiting factor in the diet of N'Dama cattle. Other possible limiting factors have not been identified, and the profitability of feed supplementation using oilseed cake has yet to be demonstrated.

The programme plans to conduct strategic research in the following areas: legume introduction, and the establishment of a feed quality database. Applied research will be conducted on interactions between nutrition and trypanosomiasis, and response functions to feed inputs. Adaptive research will be conducted on feeding and management regimes appropriate to village conditions.

2.3.3. Entomology

The main objectives of this programme are to develop methods for the determination and quantification of trypanosomiasis risk to livestock, and to assess ways by which trypanosomiasis risk may be modified by the application of existing and new control methods, especially those applicable at village level.

Data have been collected on tsetse distribution and infectivity in accordance with the Africa Trypanotolerant Livestock Network. Studies have been conducted on the ecology of village cattle, and on warthog (Phacochoerus sp.) ecology and parasitology. It has been found that warthogs may constitute the main reservoir of trypanosomes, thus demonstrating considerable interaction between wildlife and livestock. Another important result concerns the interaction between cattle grazing patterns and daily and seasonal tsetse activity cycles. ITC entomologists are of the opinion that, in principle, it is possible to control the tsetse in The Gambia using available techniques.

ITC plans to construct an epidemiological model for trypanosomiasis and strengthen the analysis of the interaction between management practices and disease prevalence, with particular emphasis on cattle ecology. In addition to sub-humid areas such as The Gambia, they plan to extend these studies to the humid areas with low cattle populations and higher trypanosomiasis risk.

2.3.4. Animal Production

The main programme objectives are to provide improved management services for the ITC herds at Kerr Seringe, Keneba and Bansang, and to carry out a limited number of on-station trials in support of the breeding programme. Also the programme aims to increase the cattle carrying capacities at ITC stations. An economic analysis is being made of the effect of supplementary feeding on cattle production under village conditions. The programme is studying the efficiency of food conversion in N'Dama cattle.

Supplementary feeding of breeding cows and growing steers was carried out using groundnut cake, rice bran and brewer's grains. The response was measured in terms of increased meat and milk yield, reproductive performance, and decreased calf mortality. Further economic analysis on the use of feed supplements is being considered.

2.3.5. Genetics

The Genetics Programme stemmed from the initial emphasis given to the N'Dama breed and was initiated with the stocking of the three stations with cattle purchased from villagers. These number some 2,000 heads of cattle; it is planned to establish a breeding herd of about 750. These animals will be available to the genetics programme for breeding and some for fattening under The Gambia Livestock Production Project.

The main objectives of the programme are to develop a selected herd of N'Dama cattle with improved meat and milk productivity; to provide a pedigree population for studies on the genetic basis for trypanotolerance, particularly in relation to the identification of genetic markers which could assist in the selection process.

The analysis of DNA collected from N'Dama cattle is a long-term project. It is hoped that eventually genetic markers will be identified for the trypanotolerance gene(s) to facilitate the application of the genetic trait in selection programmes.

No results are yet available on the genetic response to selection for increased meat and milk production. Cross breeding between N'Dama x Zebu animals was initiated and F_1 and F_2 will be infected with trypanosomes under station conditions to evaluate the degree of resistance to trypanosomiasis.

2.3.6. Training, Networking and Publications

ITC's training activities are implemented in close collaboration with the UNDP/FAO Regional Project (RAF/88/100), "Trypanotolerant Livestock for the Development of Tsetse Infested Areas in Africa", which is based at ITC headquarters.

Training activities are targeted on the ITC staff, on scientific and technical staff from national programmes in the region, and on specialized training abroad. To date, some 49 middle level technical and junior staff have been trained. Thirteen veterinarians, animal scientists and technical staff from Anglophone countries have participated in a three-week course on production and disease control of trypanotolerant cattle. A similar course is planned for Francophone countries. Three graduates have so far received specialized training overseas.

ITC's involvement in networking is done through the African Trypanotolerant Livestock Network. The two main projects of the Centre have been in full operation for about four years. ITC scientists have published four papers in refereed journals. About 30 papers have been presented by ITC staff at symposia, conferences and workshops. Several project annual reports have been prepared.

2.3.7. Regional Distribution and Programmes

Currently ITC conducts its research and related activities in The Gambia and at Kolda in Senegal.

2.3.8. Future Plans

Phase I in the development of ITC's research programme comprised the construction of the three research stations, defining the research programmes and their staffing. Phase II will consist of quantification of the factors affecting resistance to trypanosomiasis such as nutrition, lactation, pregnancy and draught power; quantification of production under village and station conditions; controlled breeding to improve productivity; improved livestock management in the village system; land utilization and pasture management; socio-economics and marketing; identification and quantification of trypanotolerance in the West Africa Shorthorn (Baoule) cattle and possibly other breeds of cattle, and also on sheep and goats; studies on the resistance of trypanotolerant cattle to other diseases such as streptothricosis, ticks and tick-borne disease and helminthiasis; training and technology transfer; and maintenance of an elite herd of N'Dama to carry out experimental studies, superovulation, selection for improved productivity and other genetic analyses. Phase III will consist of the enactment of principles on the use and management of trypanotolerant livestock; and in Phase IV the programme will be extended

through collaborative arrangements to other regions of Africa, the Middle East, Asia and South America.

3. RESULTS AND IMPACT

The most important research results in its five-year period of existence are that well managed N'Dama cattle have a high degree of trypanotolerance and, relative to their size, may be as productive as other breeds. Also, at least in The Gambian environment, the tsetse challenge may be kept under control by existing technical means, on the basis of a good understanding of the ecology of the tsetse fly, of village cattle, and of wildlife (warthogs).

Given the short time ITC has been in existence, there is no impact to show as yet. The potential impact may be large, provided that the knowledge gathered thus far is complemented by a good understanding of the dynamics of the primary production systems and their interrelations with animal husbandry.

The impact of ITC's research activities should be increased farm incomes resulting from higher animal productivity and higher labour productivity. By rational use of land and grazing livestock the sustainability of mixed farming systems in West Africa should be improved through social and economic stability for the countries involved; and environmental stability.

The contribution of ITC towards the CGIAR goal of increasing sustainable food production would thus be mainly through better resource management and increasing productivity of livestock systems.

4. GOVERNANCE, MANAGEMENT AND METHODS OF OPERATION

4.1. Governance and Structure

The governance structure of ITC was established by an Act of Parliament of The Gambia in 1982, called the "International Trypanotolerance Centre Act". The Act provides for a Governing Council of not less than nine and not more than 15 members. In current practice there are seven ex-officio members and eight independent members. Members specifically mentioned in the Act include:

(i) the Minister of Agriculture of The Gambia;

(ii) The Director General of ILRAD;

(iii) the Director General of ILCA;

(iv) two members appointed by the Government of The Gambia, one of whom shall be the Director of Animal Health and Production;

(v) the Director of ITC; and

(vi) not more than seven other persons or organizations including donor agencies, all of whom shall be appointed by the Council.

Members of Council hold office for three years and are eligible for reappointment.

The Council appoints a Chairman and Vice Chairman from among its members. The Act also provides for the establishment of an Executive Committee of the Council, consisting of the Chairman and not more than five members appointed by the Chairman from among the Council members. The Executive Committee is advisory to the Council; it meets twice a year and may meet in extraordinary session at the request of the Chairman. Decisions of the Executive Committee are subject to Council approval.

The Governing Council meets at least once a year. The Act provides that the Director of the Centre is chosen and his tenure determined by the Governing Council.

Besides the Executive Committee, the Council has also established a Programme Committee and a Finance Committee which meet annually. Committee members serve for three years.

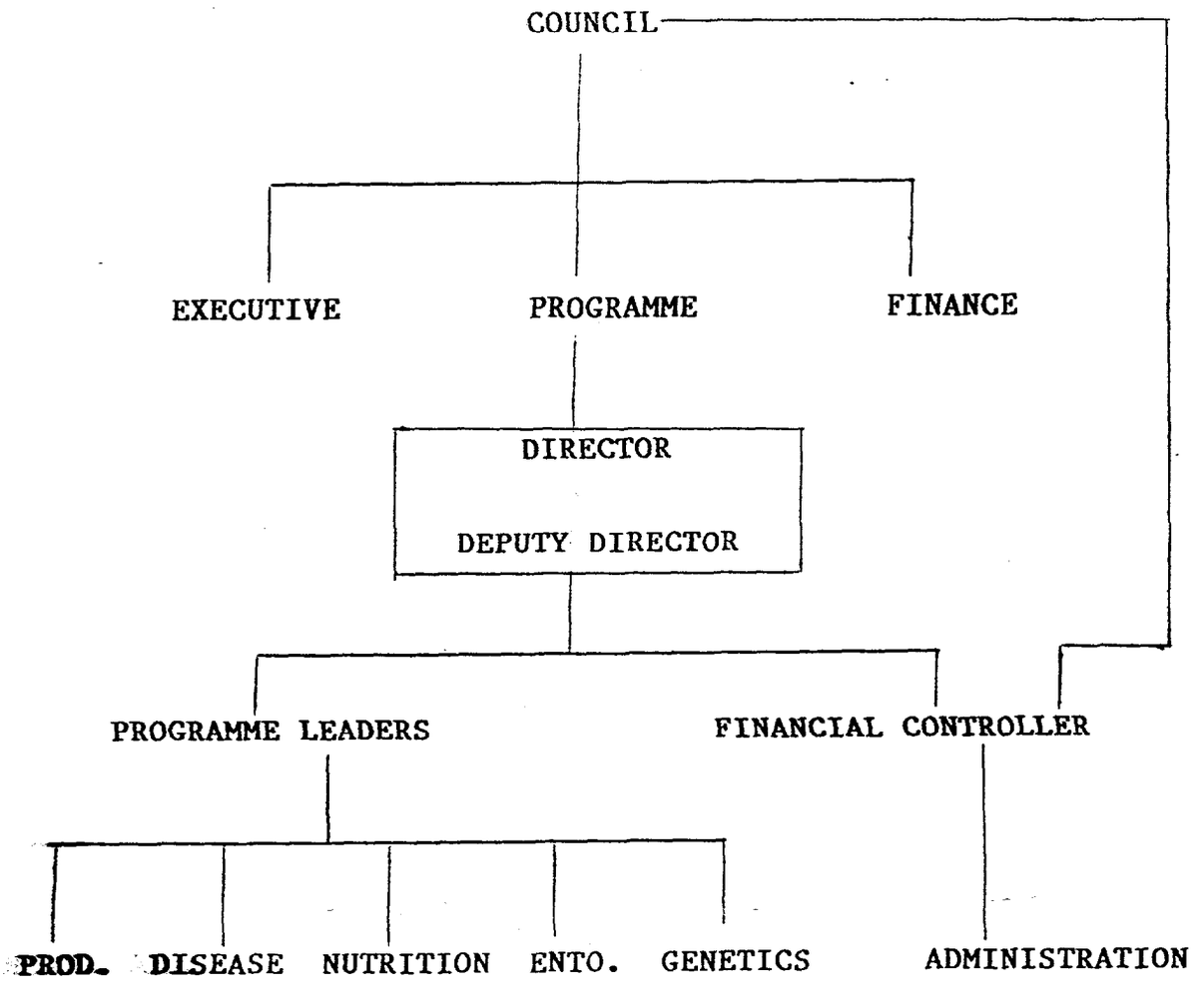
ITC has a Memorandum of Understanding with The Gambia that provides specific privileges for the Centre, including: complete autonomy of the Centre in carrying out its operations; inviolability of Centre premises; exclusive control by the Centre of its headquarters and stations; communication privileges "not less favourable than that accorded to ... any other international organization", and exemption of the Centre and its belongings and revenues from local taxation. Immunities and privileges of ITC "officials, agents and experts" are as follows: designated expatriate staff shall be accorded diplomatic immunities and privileges of officials of international organizations based in the country and are issued special identification cards. Expatriate staff enjoy numerous privileges and immunities, including exemption from taxation and duty-free import of furniture and personal effects. Foreign experts working with ITC enjoy in The Gambia the same immunities, privileges and facilities that are accorded to ITC officials and agents.

The Govening Council has established Rules of Procedure, based on those of IITA, under which the Centre operates. Also the Council has adopted a set of personnel principles and procedures which are based on those used by ILRAD.

A generalized organizational chart for ITC is presented in Figure 2. The Director, as provided for in the Act, is the chief executive officer of the Centre.

The first Director of ITC resigned in January 1989. Since then the Deputy Director has acted as Director. The Board Chairman has taken an active role in assisting the Acting Director. The Governing Council is actively searching now for a new Director for a three-year contract term.

Figure 2


COUNCIL
EXECUTIVE
PROGRAMME
FINANCE
DIRECTOR
DEPUTY DIRECTOR
PROGRAMME LEADERS
FINANCIAL CONTROLLER
PROD.
DISEASE
NUTRITION
ENTO.
GENETICS
ADMINISTRATION

4.2. Methods of Operation

In its first five years, ITC has had a dual role: international research on trypanotolerance and assisting the National Livestock Development Project of The Gambia. During this time the Director served concurrently as Director of ITC and as Project Manager of the Livestock Development Project of The Gambia. The dual responsibility of the Director and ITC was seen as advantageous, since the existence and analytical requirements of the Livestock Development Project gave access to thousands of village cattle for studies of trypanotolerance under varying levels of tsetse challenge, nutrition and herd management.

Up to now, ITC has not employed directly any staff members of its own. The Gambian Government has employed the Director, Deputy Director, Financial Controller and Livestock Officer (who also acts as ITC Programme Leader for the Production Programme). Personnel working on the EC project have been employed by ILCA and ILRAD, and persons working on the ODA project have been assigned here or paid by ODA. The same holds true for the University of Berne group working on helminthiasis, who are employed by that project. Hence, persons who are considered key members of the ITC staff are in fact employees of other organizations and institutions, with different appointment procedures, benefits and responsibilities. Thus they have dual loyalties. Only very recently has it been administratively possible for ITC to employ its own staff, but it has not had the funds to do so. The Centre hopes to begin employing its own staff on January 1, 1990.

As is shown in Figures 1 and 2, the Centre has five research programmes, namely Production, Disease, Nutrition, Entomology, and Genetics. Each programme is headed by persons paid by or representing different special projects or funding sources. For example, the Project Leader of the EC project heads the Disease Programme, the Project Leader of the ODA tsetse project heads the Entomology Programme, the Livestock Officer for The Gambian Livestock Development Project heads the Production Programme, an ILCA staff member who works in the EC project heads the Nutrition Programme, and the Deputy Director of ITC heads the Genetics Programme.

The individual special projects which comprise ITC's programme have separate responsibilities and activities, even though they often work at the same locations and on the same village herds. As a result, communications and interactions between the projects and programmes have been less than was desired. Since January, the Acting Director has scheduled weekly meetings with the Programme Leaders, the Financial Controller, and Officers in Charge of the field stations. These meetings, which have helped to improve communications and cooperation among the programmes, have also improved institutional loyalties and increased programme participation in Centre operations.

ITC has not had an easy road to follow. An absence or shortage of core funds, heavy dependence on special project funding, having no staff that it could call its own, a programme made up of several special projects each with its own procedures and responsibilities; all of these have been difficult to deal with. Then, the loss of the Director recently was at best unsettling; but ITC has managed, overall, very well. The Centre presented its programme clearly and concisely. The Council has been active and decisive in its work.

4.3. Relations with Other Institutions

4.3.1. Collaboration with CGIAR Centres

ITC has close links with ILCA and ILRAD through their collaboration in the Trypanotolerant Livestock Network, coordinated by ILCA, which was funded until April 1988 by the EC out of their regional funds for The Gambia and Senegal. Since then ILRAD and ILCA have been supporting ITC directly from their core funds while waiting for the proposed renewal of the EC project. Further the Directors General of ILCA and ILRAD are ex-officio members of the Governing Council of ITC: In addition, ITC has collaborative research with ILRAD on BoLA typing of N'Dama leucocytes; with ILCA on livestock nutrition studies and economic analysis of nutrition interventions on N'Dama cattle production in The Gambia. ITC also collaborates with CIAT and ILCA on fodder legumes. ITC has introduced and tested fodder legumes from CIAT and ILCA. Table 4.1. shows resource allocations at ITC, ILRAD, ILCA and ICIPE according to the CGIAR glossary of activities.

4.3.2. Collaboration with National Institutions in Africa

ITC cooperates with the Department of Livestock Services in The Gambia, the Institut Sénégalais de Recherches Agricoles (ISRA), and Institut Pasteur in Senegal on serological testing of cattle for Rift Valley Fever antibodies. Future collaboration is planned with the Centre de Recherches sur les Trypanosomoses Animales (CRTA) in Burkina Faso, the N'Dama Project in Guinea, Conakry, and national livestock programmes in member countries of the Mano River Union (Sierra Leone, Guinea, and Liberia).

4.3.3. Collaboration with Other Institutions

ITC collaborates with many universities and laboratories in developed countries on parasitology, helminthiasis and the mapping of trypanotolerance loci of the N'Dama cattle. These include: University of Berne, Switzerland; the Hebrew University of Jerusalem, Israel; Texas A & M University, USA; Swedish University of Agricultural Science, Sweden; Veterinary Institute of Oslo, Norway; The Free University of Brussels, Belgium; Milan and Pavia Universities, Italy; University of Bristol, U.K.; the Medical Research Council, U.K.; and the University of Utrecht, Netherlands.

Table 4.1. Resource Allocation/Requirements for International Research in Animal Diseases and Production (1988, in US$ '000)

Programme/Activity	ILRAD	ILCA	ICIPE	ITC
TSETSE			0.6	0.3
TRYPANOSOMIASIS				
- Epidemiology	1.0	0.2		
- Biology/Biochemistry	1.3	0.2		
- Immunology	0.6			
- Resistance Mechanisms (Trypanotolerance)	0.5			0.3
- Research Support*	1.0	0.2	0.6	
Sub-Total	4.4	0.6	1.2	0.6
TICKS			0.6	0.2
THEILERIA				
- Epidemiology	0.4			
- Sporozoite Immunization	0.5			
- Schizont Immunization	1.2			
- Research Support*	1.0	0.2	0.6	
Sub-Total	3.1	0.2	1.2	0.2
TROPICAL THEILERIA				
COWDRIOSIS				
MEDICAL VECTORS			0.4	
OTHERS, e.g. Helminthiasis and Streptothricosis		0.1		0.1
LIVESTOCK PRODUCTION				
- Cattle Meat and Milk		2.9		0.4
SOCIO-ECONOMICS	0.4	0.8		
TRAINING & INSTITUTION BUILDING	1.0	2.9	0.7	0.2
TOTAL	8.9	7.5	3.5	1.5

* This includes some of the work done by ILRAD on ticks and tsetse and by ICIPE at the Mbita Point Field Station.

5. A PROFILE OF RESOURCES

5.1. Physical Resources

The physical facilities of ITC are new, simple and modest in design, but very functional. These facilities were built using loan funds to the Government of The Gambia from the African Development Fund. The loan provided funds to equip and furnish the laboratories, offices, houses and other facilities of the Centre.

ITC operates at three sites in The Gambia, all of them equipped with laboratories, other research facilities, hostels for visitors and scientists, staff housing and ITC-owned cattle herds (Table 5.1.). The stations are served by good roads, electrical power and water supplies, and are linked by radio communications.

At headquarters, there are a hostel for visitors and trainees, cafeteria, experimental animal unit, library, mechanical workshop, post mortem facilities, and utilities.

ITC also has built or rented simple field laboratories in the villages where measurements are made of the vector, the parasites, and the host animals. These simple facilities are used to check blood for trypanosomes and to measure and record other data pertinent to studies of village herds.

ITC has over 2,000 cattle (Table 5.1.). These are used for research purposes and may be in excess of the number required for the research programme.

Table 5.1. ITC Physical Facilities in The Gambia

Location	Land Area (ha)	Labs.	Houses	Dairy Proc. Plant	Feed-mill	Cattle No.
Kerr Seringe (Hqs.)	30	5	12	1	1	600
Keneba	90	2	7	-	-	1,050
Bansang	70	4	12	1	1	400

5.2. Staff Resources

ITC draws its staff from the projects which are headquartered in The Gambia and are associated with the Centre (Table 5.2.). As can be seen from the table, the senior staff members of the Centre are employed by five sources: the Government of The Gambia; the Overseas Development Administration of the U.K. (ODA); the European Community (EC), working through ILCA and ILRAD; the University of Berne, Switzerland; and the Livestock Development Project of The Gambia. Some seven nationalities are included in the 14 senior staff of the Centre. ITC looks forward to the day when it can employ its own staff and be less dependent upon special projects for filling the key positions in its programmes.

Table 5.2. International Trypanotolerance Centre
Senior Staff Complement

PROGRAMME	EMPLOYER					
	TOTAL	Gambia Govt.	ODA	EC	Swiss	ADF Project
Production	1					1 British
Nutrition	1			1 Australian		
Livestock Disease	6			1 Dutch 1 Ghanian 1 British 1 Belgian	2	
Genetics	1	1				
Tsetse	3		3			
Administration & Operation	2					2 British
TOTAL	14	1	3	5	2	3

5.3. Financial Resources

The funding of about US$ 10 million provided by The Gambian Government under the Livestock Development Project financed by the African Development Fund has been the principal source of support for ITC. The three sites were fully equipped under this project including the construction costs. In addition, the "project" has directly

supported the core management team (three senior staff) and participation of five Gambian senior staff. Funding by other principal donors including ODA, EC, Belgium and Switzerland has been mainly used to develop project activities for individual research thrusts using the central "core" instituted under the Livestock Development Project. Consequently a major turning point has been reached this year as the Livestock Development Project funding ends later in the year. In parallel, the EC-funded project (executed by ILCA/ILRAD) is also up for renewal and so is the ODA project. While the prospects for renewal and adding new donors are reasonable, 1989 is clearly an important transition year for significant changes in ITC's support base. For example, pending confirmation of the EC project extension in 1989, ILCA and ILRAD have provided bridge funding in 1989. These needs would significantly expand in 1990 as, based on current donor commitments, ITC faces a funding gap of well over US$ 1 million. The Centre would have to close in early 1990 unless this shortfall can be met. Table 5.3. below provides details on the funding composition, while Tables 5.4 and 5.5. provide programme spending details.

Table 5.3. ITC Funding Composition (in US$ M)

DONOR	1987	1988	1989 (est.)
African Development Fund/ Government of The Gambia	4.52	1.85	1.14
Belgium	0.11	0.11	0.08
Rockefeller Foundation	0.03	0.01	-
European Community/ ILCA-ILRAD	0.29	0.39	1.16
United Kingdom	0.13	0.30	0.42
Switzerland	-	0.09	0.09
UNDP			0.10
TOTAL	5.08	2.75	2.99

Table 5.4. Programme Expenditures

PROGRAMME	1987		1988		1989 (est.)	
	SMY	$M	SMY	$M	SMY	$M
Livestock Production	1	0.19	1	0.29	1	0.24
Livestock Nutrition			1	0.06	2	0.16
Livestock Diseases	4	0.30	6	0.41	7	0.49
Genetics of Tryps.			1	0.03	1	0.33
Tsetse Research	3	0.27	3	0.29	3	0.34
Training				0.07		0.10
General Administration	2	0.52	2	0.53	3	0.79
TOTAL	10	1.28	14	1.68	17	2.45
Capital Spending		3.80		1.07		0.51
Total Expenditure		5.08		2.75		2.96

Table 5.5. ITC Programme and Activities, According to CGIAR Glossary

Actual Expenditures for 1988	SMY	Amount (US$ '000)	%
Livestock Breeding & Germplasm	1	290	10.6
Livestock Nutrition	2	60	2.2
Livestock Diseases			18.0
- **Trypanosomiasis**	4	283	
- **Tick-Borne**	1	60	
- **Helminthiasis**	2	90	
- **Other**	1	60	
Sub-Total	11	843	

Table 5.5. (cont'd)

Actual Expenditures for 1988	SMY	Amount (US$ '000)	%
Livestock Systems	1	84	3.0
Research on Approaches	2	151	5.5
Training	-	70	2.6
TOTAL	14	1,148	
General Administration	2	284	10.3
General Operations	-	245	8.9
TOTAL OPERATIONS	16	1,677	
Capital		1,068	38.9
TOTAL EXPENDITURES (1988)		2,745	

6. ISSUES AND CONCERNS

The Chairman of the Governing Council identified several issues and concerns for ITC. These fell into three categories: organizational, managerial and scientific.

The organizational concerns included the need for bridging funds until TAC and the CGIAR are in a position to decide on ITC membership in the CGIAR. Many donors and potential donors to ITC are waiting for the outcome of the TAC assessment. The ITC Governing Council is in the process of preparing a contingency plan for the Centre. There was also an urgent need to appoint a new Director, and to define more explicitly the relationship of ITC with ILRAD and ILCA. The independence of ITC, also with regard to ILRAD and ILCA, was considered to be an issue, should the Centre become a member of the CGIAR family.

Managerial issues highlighted by the Council Chairman related to data analysis, publications, veterinary dominance in the staff, marketing policy, careers for national staff, and staffing patterns with respect to team leaders.

Scientific issues and concerns related to the ecological impact of increased cattle numbers arising from better management and control of tsetse challenge; possible research on trypanotolerant sheep and goats; and possile research on streptothricosis and other diseases. Other concerns mentioned included focus of the Genetic Programme; availability of supplemental feeds; land management strategies; and regional extension to areas of lower livestock population densities.

ANNEX I

TERMS OF REFERENCE

FOR THE TAC MISSION TO THE NON-ASSOCIATED CENTRES

Introduction

The CGIAR decided at its May 1988 meeting to consider a possible expansion of the System to incorporate some of the activities being undertaken by the so-called non-associated centres. TAC was given the responsibility of assessing ten of these institutions. The Committee has defined the strategy to be followed and has developed criteria for the evaluation. Two stages are envisaged in the evaluation process.

In stage one, for which these terms of reference have been developed, sub-groups of TAC Members will visit the non-associated centres to review the subject matter represented by their programmes. The sub-groups will be assisted by one or two external experts for each centre. After reviewing the mission reports, TAC may proceed to stage two and subject those centres whose activities might be eligible for CGIAR support to a more detailed assessment in the form of external programme and management reviews.

Purpose and Scope of the Mission

The main objective of the mission in stage one, is to assess the programmes/activities carried out by the non-associated centre(s) in order to determine whether they meet the criteria established by TAC for CGIAR support.

The review mission is expected to give particular attention to the following aspects of the work of the centre:

(i) Obtain information on actual programmes/activities.

(ii) Obtain five-year and longer-term strategic plans, if available.

(iii) Make a preliminary analysis of the potential contribution of the programmes/activities of the centre to elements that TAC would probably use in its CGIAR priority setting exercise such as:
- contribution to food production and food security;
- contribution to sustainable use of resources;
- internationality of efforts;
- research and related activities; and
- contribution to the strengthening of national agricultural research programmes.

(iv) Determine current and potential interactions of the centre with CGIAR institutes, with other non-associated centres, as well as with other research organizations, and assess how the centre interacts with national programmes.

(v) Make a preliminary assessment of the research and related activities with respect to:
- results of past research;
- current and planned research;
- adequacy of research-support facilities; and
- potential impact.

(vi) Assess the nature and appropriateness of the governance, organizational structure and research management.

(vii) As much as possible, identify quantitatively how they allocate resources among activities, as specified in the revised glossary of CGIAR activities (Appendix I), currently and within five years.

(viii) Make a preliminary assessment of the physical plant.

The sub-groups of TAC Members and consultants will prepare reports on their findings at the end of the review mission for consideration by TAC.

Proposed Report Outline (Items in parenthesis correspond to specific items in the Terms of Reference)

1. BACKGROUND
   - a brief history of the centre
   - mandate/mission statement
   - the centre's clients and how it perceives them

2. THE CENTRE PROGRAMME (i)
   - the centre strategy, and its implementation (ii)
   - constraints addressed, constraint analysis
   - the programme approach and operation
   - the research programme
     - strategic
     - applied
     - adaptive
   - training
   - support programmes
   - the regional distribution of programmes
   - future plans

3. RESEARCH RESULTS AND IMPACT (v)

4. GOVERNANCE, MANAGEMENT, AND METHODS OF OPERATION (vi)
   - governance and structure
   - methods of operation
   - relations with other institutions (iv)
     - national programmes
     - other IARCs
     - institutions in advanced countries

5. A PROFILE OF RESOURCES (vii)
   - physical facilities (viii)
   - staff resources
   - funding resources (allocation based on glossary of CGIAR activities)

6. ISSUES AND CONCERNS

ANNEX II

COMPOSITION OF TAC SUB-GROUP TO ITC

Chairman

Dr. C.T. de Wit (TAC Member)
Dept. of Theoretical Production Ecology
Agricultural University
P.O. Box 430
7600 AK Wageningen
Netherlands

Members

Dr. A. Muhammed (TAC Member)
Chairman
Pakistan Agricultural Research Council (PARC)
G-5/1, Post Box 1031
Islamabad, Pakistan

Dr. F.J. Tilak Viegas (Consultant)
Rua Publia Hortensia de Castro 1.5.B.
1600 Lisboa, Portugal

Dr. D.L. Plucknett
Scientific Advisor
CGIAR Secretariat
World Bank, 1818 H Street, N.W.
Washington, D.C. 20433
U.S.A.

Mr. Ravi Tadvalkar*
Senior Financial Officer
CGIAR Secretariat

Dr. J.H. Monyo
Executive Secretary, TAC
Food and Agriculture Organization of
the United Nations (FAO)
Via Terme di Caracalla
00100 Rome, Italy

* Not a member of the TAC Mission, but provided significant inputs on the Section dealing with Profile of Resources

ANNEX III

TAC SUB-GROUP REVIEW PROGRAMME

(The Gambia, 1-6 May 1989)

Monday, 1 May

13:30	Arrival in Banjul
16:30	Pick-up from hotel: visit to Kerr Seringe (preliminary inspection of site)
18:00	Opening statement by Chairman of Council
18:05	Background - B. Touray - a brief history of the Centre - mandate/mission statement - the Centre's clients and how it perceives them
18:15	A Profile of Resources - R. Dwinger - physical facilities - staff resources - funding resources (allocation based on glossary of CGIAR activities)
18:25	Closed Discussion
19:30	Reception hosted by the Chairman of the Council to meet senior staff members of ITC

Tuesday, 2 May

09:30	The Centre Programme - The Centre strategy and its implementation - M. Murray - Constraints addressed, constraint analysis The programme Approach and Operation - A. Davis - The research programme (an example) - K. Agyemang -- strategic -- applied -- adaptive Research Results and Impact - Livestock disease - R. Dwinger - Nutrition - D. Little
11:00	Open Discussion
11:45	Closed Discussion
13:00	Lunch at Director's House

14:00 Research Results and Impact
- Production - D. Clifford
- Tsetse - W. Snow
- Genetics - B. Touray

Support Programmes
- Helminthiasis - R. Dwinger
- Sheep and Goats - D. Clifford
- Range Management and Improvement - S. Gassama

Training
- ITC - W. Snow
- FAO/UNDP - C. Hoste
- Future Plans - M. Murray

15:30 Open Discussion

16:00 Closed Discussion

Wednesday, 3 May

09:00 Governance, Management & Methods of Operation
- Governance - A. Davies
- Methods of Operation, Relation with other Institutions - B. Touray
  -- National Programmes
  -- Other IARCs
  -- Institutions in advanced countries

10:30 Depart for Nioro Jataba

12:30 Lunch at Tendaba

14:00 Keneba
- Laboratory
- Range Management
- Cattle Ecology
- Challenger

16:00 Depart for Bansang

Thursday, 4 May

07:30 Bansang - Site Tour

09:30 Presentation of Field Programmes
- Helminthology
- Tsetse

10:30 Depart for Banjul (via Kundang, Jahally Pacharr)

ANNEX IV

PERSONS MET BY THE TAC SUB-GROUP

A. Board and Management

Prof. A. Davies, Chairman of the Governing Council
Prof. M. Murray, Member of the Governing Council
Dr. Bakary N. Touray, Deputy Director

B. Senior Professional Staff

Dr. William F. Snow, Senior Entomologist and Team Leader, Entomology Programme
Dr. Ron Dwinger, Veterinary Scientist and Team Leader, Livestock Diseases Programme
Dr. Derek J. Clifford, Animal Production Specialist and Team Leader, Production Programme
Dr. Douglas Little, Veterinary Nutritionist
Dr. Kwaku Agyemang, Animal Production Scientist and Computer Manager
Mr. Hugh A. Hanley, Financial Controller
Mr. Alastair Grieve, Laboratory Manager
Dr. Badou Loum, Veterinary Scientist, Officer-in-Charge, Bansang
Dr. Duto Fofana, Veterinary Scientist, Officer-in-Charge, Keneba
Mr. Sissawo Gassama, Pasture and Range Management
Mrs. Ami Njie-Gassama, Animal Production Officer
Dr. Philip Leperre, Veterinary Scientist
Dr. Hannes Kaufmann, Veterinary Scientist
Dr. John Claxton, Veterinary Scientist
Dr. Jonathan Tanner, Animal Nutritionist
Dr. Tim Wacher, Mammalian Ecologist

C. ISRA (Institut Sénégalais des Recherches Agricoles

Dr. N'Diaga Mbaye, Deputy Director

D. Ministry of Agriculture, The Gambia

Mr. Amadou Taal, Permanent Secretary