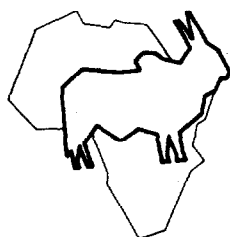


consultative group on international agricultural research
technical advisory committee and cgiar secretariat

CGIAR
Information Service

report of the third
external programme and management review
of the
international livestock centre for Africa
(ILCA)



ilcar93.pdf

This report comprises:

- (a) Extract from: "Summary of Proceedings and Decisions", International Centers Week, Washington D.C., U.S.A., 26-29 October 1992
- (b) Letter from TAC Chairman and CGIAR Executive Secretary, transmitting the Report of the Third External Programme and Management Review
- (c) TAC Commentary on the External Review of ILCA
- (d) ILCA's response to the Report of the Third External Programme and Management Review
- (e) Transmittal letter from Panel Chairman to TAC Chairman and CGIAR Executive Secretary
- (f) Report of the Third External Programme and Management Review of the International Livestock Centre for Africa (ILCA)

**THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
TECHNICAL ADVISORY COMMITTEE AND CGIAR SECRETARIAT**

**REPORT OF THE THIRD EXTERNAL PROGRAMME AND MANAGEMENT REVIEW
OF THE
INTERNATIONAL LIVESTOCK CENTRE FOR AFRICA
(ILCA)**

**TAC SECRETARIAT
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**

January 1993

Consultative Group on International Agricultural Research

Mail Address: 1818 H Street, N.W., Washington, D.C. 20433, U.S.A.

Office Location: 801 19th Street, N.W.

Telephone (Area Code 202) 473-8951

Cable Address - INTBAFRAD

Fax (Area Code 202) 334-8750

From: The Secretariat

January 1993

International Centers Week

October 26-29, 1992

Washington D.C., U.S.A.

ILCA - External Review 1/

Norman Halse, Chairman of the External Program and Management Review of ILCA, said that the Center's mandate has been appropriate up to now. If the mandate was to be changed, as part of current moves within the CGIAR system to take an ecoregional approach, ILCA could play two roles in the future:

- to provide livestock expertise throughout Africa for other centers carrying out crop-livestock studies; and
- to maintain a center for one of the ecoregions of Africa, presumably the highlands region, where crop-livestock studies and resource management work could be done.

On strategy, the panel recommended that ILCA make its focus sharper by reducing the scope of its work and amending its strategy by restricting the number of research themes that it addresses. ILCA should continue to work on livestock problems affecting poor, small mixed farmers and agropastoralists in Africa. It should maintain a systems emphasis and cooperate with other international centers in researching crop-livestock systems and maintain high scientific quality by using peer review to ensure this.

1/ Extract from "Summary of Proceedings and Decisions", International Centers Week, Washington D.C., U.S.A.

The panel recommended that ILCA should locate its zonal teams at other international agricultural research campuses in Africa, which would further promote efficiency and cooperation on crop-livestock studies with IITA and ICRISAT. ILCA already cooperates well with many organizations. ILRAD and ILCA are working well together and the panel felt that rather than changing their structure, it was only necessary to strengthen cooperation.

ILCA's current board works harmoniously with the management of the center. The panel noted, however, that either the management style or the environment of ILCA was producing an organizational culture that was not conducive to staff stability. Because of the limited budget and therefore smaller size of the staff, the administrative load for international research staff was excessive. The staff turnover rate is high and the panel urged that human resource management should be improved.

One of the strengths of ILCA is the amount of emphasis placed on regional research work at sites remote from headquarters, which helps strengthen the institution-building efforts of ILCA. The panel endorsed the view of African research leaders that ILCA's greatest contribution was in improving the capacity of the national systems.

ILCA's Board Chair Dieter Bommer indicated that a human resource management study had been commissioned and completed and that some minor improvements were initiated. However, the study reassured them that, contrary to the findings of the external review, the trust in the senior management by the staff in ILCA is very high and the international staff is highly motivated.

He said that the board recently accepted the resignation of Director General John Walsh with regret. For family reasons, Mr. Walsh wishes to return to a senior position in the agricultural research system in Ireland. The board has initiated a search process to replace him in mid-1993.

Mr. Walsh supported the panel's recommendation that the focus of ILCA's research should be tightened, but referred to the complexities and difficulties of organizing widely dispersed research activities throughout Sub-Saharan Africa that are closely integrated with national systems and other institutions. Currently, only 25 percent of ILCA's research is conducted in Ethiopia. The rest is done mostly in collaboration with other centers and institutions.

Focus in livestock research needs a programmatic delineation rather than one based on geographic, ecoregional, or strategic applied criteria; the role of livestock transcends these boundaries. In program terms, all of ILCA's programs could be focused on smallholder milk production and crop-livestock interactions. The ecoregional concept of TAC has been used by ILCA since it was established in 1975.

The amelioration of the policy environment in many countries and the rapid growth of smallholder milk production, especially in peri-urban areas, is probably the single biggest livestock development in Africa in the lifetime of ILCA. The center, with national systems, now has in place the essential technologies and policies needed to underpin these important developments - feed resource technology, genetic conservation

and improvement programs, milk processing technologies, studies of markets, trained personnel, and a strong information base.

The question of turnover rate is complex because the numbers are constantly changing and in some years were associated with program changes; this year it is the lowest ever in the history of the center. More important is the level of output of the center - its publication rate, its scientific skills, and its institutional impact.

Mr. Alex McCalla said that TAC in general endorses the recommendations of the panel and has added several additional comments. They commend ILCA for moving toward a systematic project-oriented research planning process, which clearly involves its partners in research, particularly the NARS. TAC and the CGIAR Secretariat are concerned, however, that ILCA's spectrum of research activities may still remain too broad and may need to be narrowed both in terms of programs and geographic areas.

ILCA's work and responsibilities remain of high priority and the center will continue to fulfill an essential role in the future, and, therefore, TAC recommends continued support of the center.

Members of the Group expressed concern about the number of and diversity of research thrusts and consequently the need for extremely skilled managerial efforts. One speaker commented on the confusion of recommendations from review to review and suggested taking into account these previous reviews in reaching final conclusions, particularly about cooperative efforts. Another member wanted a clearer statement of programs where ILCA has comparative advantages, mainly as an ecoregional center.

In responding, Mr. Halse said that yes some of the conclusions may seem to reverse earlier reviews because the institution has changed. He agreed that zonal representation should be located as far as possible where they could work in cooperation with other centers so that they could share specialized staff and work on crop-livestock systems.

The Chairman said that the Group was in broad agreement with the conclusions and recommendations of the ILCA review and appreciated the rapid follow-up by ILCA's Board and management. The Group appears to be particularly encouraged by ILCA's desire to narrow the focus of its mission, he emphasized.

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
TECHNICAL ADVISORY COMMITTEE

Alex F. McCalla
Chair

14 September 1992

Dear Mr. Rajagopalan,

We take the pleasure of submitting to you the report of the Third External Programme and Management Review of the International Livestock Centre for Africa (ILCA), which was conducted under the chairmanship of Mr. Norman Halse. The report was considered by TAC at its 58th meeting in Rome, in the presence of the Chairman of the Board of Trustees, Dr. Dieter Bommer, and the Director General, Dr. John Walsh. At this meeting, livestock-related items figured prominently on the agenda as TAC also considered the ILRAD External Review report, the Winrock Study on Animal Agriculture in sub-Saharan Africa, and Future Priorities and Strategies for Livestock Research in the CGIAR.

TAC's commentary on ILCA's external review report, which was prepared with inputs from the CGIAR Secretariat, is attached to the report. We commend ILCA for moving towards a systematic, project-oriented research planning process which closely involves its partners in research, particularly the national agricultural research systems. We are also pleased about the good relations that exist between the Board and management of ILCA.

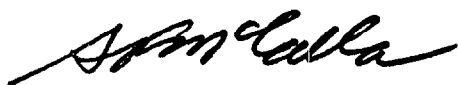
TAC and the CGIAR Secretariat are concerned, however, that ILCA's spectrum of research activities remains too broad and in need of considerable narrowing and focusing, both in terms of programmes and geographic areas. We are also concerned about the high turnover rate of staff, apparent low staff morale, the limited amount of technology which has been developed, and the lack of impact by the Centre. TAC believes that many of the problems encountered at ILCA, in terms of scientific achievements, impact and management, are inter-related and are the consequence of the lack of a well-focused operational mandate.

Mr. Visvanathan Rajagopalan
CGIAR Chair
World Bank
1818 H Street, N.W.
Washington, D.C. 20433
USA

As indicated in the accompanying Priorities and Strategies for Livestock Research in the CGIAR, TAC believes that ILCA's mandate and activities are ecoregional in nature, and that the institute, in the future, should consider assuming responsibility for one major ecoregion of sub-Saharan Africa.

While TAC raises questions about ILCA's performance during the last five years, it is also convinced that ILCA's task is an important one, and one that merits continuing support by the CGIAR. We believe that ILCA's work and responsibilities remain of high priority to the CGIAR and that the Centre will continue to fill an essential role in the System in the future.

Yours sincerely,



Alex McCalla
Chair, TAC



Alexander von der Osten
Executive Secretary, CGIAR

TAC COMMENTARY ON THE EXTERNAL REVIEW OF ILCA

TAC is grateful to the panel that conducted the Third External Programme and Management Review of the International Livestock Centre for Africa (ILCA) for a critical but positive report. It provides a valuable input to the ongoing discussion on the future of CGIAR-supported livestock research in sub-Saharan Africa, and makes useful suggestions to the Centre as it is developing its medium-term proposals. The Committee notes that several critical observations made by the panel are not reflected in its subsequent recommendations. TAC nevertheless endorses in general the recommendations made in the report and offers the following commentary, prepared with inputs from the CGIAR Secretariat, to supplement the panel's work.

Evolution of the Centre

ILCA has implemented a new matrix management structure based on thrusts, disciplines and zonal sites. Management is decentralized accordingly and the approach to research has remained multidisciplinary and farming systems oriented. ILCA's research is project-driven and the Centre has put in place a new management information system that could strengthen planning and decision-making. Nonetheless, the panel's recommendations are to simplify the research management structure, and to strengthen scientific leadership of middle management. TAC strongly endorses these recommendations.

Strategy and Programmes

TAC commends ILCA for moving towards a systematic, project-oriented research planning process which closely involves its partners in research, particularly the national agricultural research systems. The Committee is concerned, however, that ILCA's spectrum of research activities is still too broad and in need of considerable narrowing and focusing, both in terms of programmes and of geographic areas. TAC agrees with the panel's view that ILCA is committed to so many types of research that there is a danger that none may be done properly, and that there are too many poorly focused research themes. ILCA's operational mandate includes all the major aspects of ruminant livestock production systems in sub-Saharan Africa. The Committee urges the Centre to undertake a rigorous review of its programme priorities when developing its medium-term proposals, with the objective to considerably reduce the number of activities to a set of well focused and clearly argued research problems of strategic importance.

ILCA should consider carefully the interaction of its systems research with the component research it identifies for priority action. In this interaction, TAC would encourage ILCA to consider the place of the user perspective, including gender, and environmental issues in programme formulation. With regard to the latter, TAC concurs with the recommendation of the panel that ILCA should ensure that greater attention is

paid to sustainability, through undertaking an adequate ex-ante review of sustainability issues in sub-Saharan Africa relevant to all of its new research projects.

TAC appreciates ILCA's efforts to position its scientists closely to its collaborating partners in networks and national research systems. However, it urges the Centre to carefully consider the need for a critical mass of experienced scientists at headquarters to provide the sustained momentum for high quality research, particularly that of a strategic nature. Each programme should consist of a critical mass of scientists under able leadership and be structured so as to allow for continuity.

TAC has noted the panel's recommendation that ILCA should initiate an ecoregional centre for the highlands zone. The Committee considers that this recommendation may be premature in the light of the ongoing dialogue and initiatives within the system on the ecoregional approach to research in the CGIAR. Nevertheless, TAC would encourage ILCA to develop, as part of its effort to focus, proposals with partner centres in its medium-term planning process, and submit these for consideration to TAC.

Impact

TAC is concerned about the limited amount of technology developed so far by ILCA. While the panel looked for, and found some evidence of, adoption of practices arising from ILCA's work, it was not clear from the report how much value had been added since the last external review to two of the technologies which were considered to be promising in both reviews; alley farming and fodder banks. Adoption of a third technology, vertisols management, had also been slower than expected. The Committee would encourage the Centre to systematically review the reasons for adoption or non-adoption of improved technologies, and to assess the progress in obtaining impact.

TAC commends ILCA for its recent initiative to fully integrate an impact perspective in its project proposals. This will create a baseline for the Centre to monitor future impact of its activities.

Quality of Science

TAC notes that ILCA's scientific publication record has been generally poor, except in the trypanotolerance thrust. While TAC is encouraged by the assurance of the Director General of ILCA that the situation has been improving recently, it would urge the management of the Centre to place high priority on increasing the scientific output of the Centre. Efforts should continue to encourage scientists to publish not only in 'grey literature' but also in peer-reviewed publications. The Committee stresses that the publication record is not only important for the Centre, but is also essential for the credibility of the individual scientists. TAC also strongly endorses the panel's recommendation that the management should take steps to ensure disciplinary peer reviews of its research. Such peer reviews should be undertaken regularly by external panels.

Governance

TAC is pleased to note the excellent relations and collaborative spirit between the Board and senior management. It concurs with the panel's recommendation that the Board should reduce its excessive dependence on the Executive Committee. In addition, TAC encourages the Board to play a more active role in narrowing ILCA's focus. The Committee also suggests that the Board remain aware of the overall climate of staff morale within the Centre. The Board should also keep a watching brief on the administrative costs as a share of total Centre expenditures and take appropriate action should the need arise.

In-Trust Funds

ILCA manages a number of 'in-trust funds' which are donor contributions to NARS in Africa but are given to ILCA to manage on behalf of donor organizations. TAC notes that the panel appreciated the value of these in-trust funds, and is concerned about the panel's observation that ILCA is not charging an appropriate administration fee to cover its overhead costs. TAC regards the administration of 'in-trust funds' as being admissible only if the integrity of unrestricted funding is completely safeguarded. While recognizing the importance of these funds for the efficient participation of NARS in networks, TAC would caution ILCA not to become excessively involved in the management of such funds.

Management of Human Resources

TAC shares the panel's concern about the high turnover rate of internationally recruited staff. The Committee is particularly concerned about the implications arising from the lack of continuity in the implementation of the Centre's programme for efficient use of resources, ensuring credibility with research partners, and maintaining scientific quality. It stresses that continuity is vital for the success of internationally supported research, and even more so in the case of livestock research which is a long-term undertaking. TAC understands that the high turnover rate can be attributed partly to a planned change process which necessitates a different staff composition. However, TAC urges the Board and management of ILCA to take all necessary steps to reduce this excessive rate of staff turnover, which has been attributed, in part, to management styles and to ILCA's external environment.

Similarly, TAC would urge the management to examine the issue of staff morale. It is the task of management to create an atmosphere in which team spirit, enthusiasm and commitment can fully flourish. This would allow also for the development of a positive organizational culture which encourages dialogue and a spirit of collaborative effort toward a common goal.

In view of the limited number of female professional staff, TAC recommends that ILCA take whatever steps necessary to address this issue.

External Links

TAC commends ILCA for its efforts to develop strong partnerships with national research programmes. It is pleased with ILCA's commitment to the involvement of NARS in its planning process, and its development of close collaboration through network activities. TAC concurs with the panel that ILCA's major contribution to date has been in institution building, particularly through its training and information activities which are both highly appreciated by national research systems. The report of the panel is somewhat cryptic about ILCA's network activities, and TAC has therefore not been able to fully assess their relevance and success. TAC is pleased that ILCA's relations with other IARCs are generally good. The Committee notes, however, that the report has overlooked the evaluation of the links between ILCA and ICRAF. In view of the continuum between animal agriculture and forestry, these links are particularly important.

TAC notes that both the ILCA and ILRAD review panels advised against a merger between ILCA and ILRAD at this time. TAC concurs with the ILRAD panel's suggestion that the centres jointly plan, fund, execute and evaluate appropriate collaborative projects. There is, therefore, a need for increased communication between the two centre Boards; further consideration should be given to overlapping membership of the Boards. TAC's views on future relationships between ILCA and ILRAD on the one hand, and between them and International Trypanotolerant Centre (ITC), Centre international de Recherche-Développement de L'Elevage dans les Zones sub-humide (CIRDES, formerly CRTA) and International Centre of Insect Physiology and Ecology (ICIPE) on the other hand, are further elaborated in a strategy statement on livestock research in the CGIAR.

Follow-up

TAC believes that many of the problems encountered at ILCA in terms of scientific achievements, impact and management are interrelated and are a consequence of the lack of a well focused operational mandate. A narrower focus in terms of fewer programmes and geographical areas would allow for critical mass at headquarters and at key sites, for greater continuity, and for higher scientific productivity. In TAC's view there is also an imperative need to implement modifications in the management structure and policies, to strengthen leadership, to diminish the load of administrative functions and to enhance corporate spirit and organizational culture. Consequently, TAC urges the Board and management of ILCA to present a progress report on changes introduced at the Centre in response to the issues highlighted in this commentary, at the time of consideration of its medium-term proposal.

ILCA's Response to the report of the Third External Programme and Management Review

Addis Ababa, 6 April 1992

ILCA's Board of Trustees and Management have formulated a joint response to the report. They commend the Review panel for a constructive and positive report that will be of very considerable value to the Centre. The report is thorough in its appreciation of the challenging circumstances under which the Centre operates and of the possibilities available for improvement. It is a thoughtful and balanced document which reviews past performances and achievements and makes valuable recommendations and suggestions from which the Centre will make every endeavour to learn.

The Centre recognises the immensity of the task undertaken by the Review panel; to evaluate, within severe time constraints, both the programme and management of a Centre with a complex mission, a wide and highly decentralised programme with many diverse programme partnerships throughout sub-Saharan Africa and overseas.

The Centre is appreciative of the report's endorsement of many aspects of the Centre's work; its role and mandate within the CGIAR; its governance structure, programme choices, partnership arrangements with NARS colleagues and many aspects of the organisation of the Centre's programme, management structures and inter-centre relationships.

The Centre highly values the criticisms and proposals for change expressed in the report which stimulates ILCA's Board and Management to seek improvements.

The Centre appreciates also the report's endorsement of ILCA's continuing and important mission; the panel's thoughtful consideration of the future and the recommendations on the worthy role for ILCA in the evolving CGIAR system. The report will give an important credibility to ILCA both with its donors and with its colleagues in national programmes. This endorsement is an especially valuable asset in a period when CGIAR centres, including ILCA, are coping with funding resources that are greatly reduced relative to requirements envisaged in the Centre's TAC approved Medium-term Plan. The EPMP's endorsement of the Centre's need for additional funds, if its wide and increasingly important mandate is to be effectively implemented, is appreciated. The Centre notes also that some EPMP's recommendations require incremental funding. These

additional funds are required to ensure execution of present roles as well as additional responsibilities in the CGIAR in collaboration with other CGIAR centres.

The Centre, recognising that this was one of the first attempts to combine Programme and Management reviews of one of the larger and more complex CGIAR centres, values this opportunity to comment on this aspect of the review. The Centre appreciates the approach and commends the efforts of TAC and the CGIAR Secretariats for this initiative. ILCA further commends the panel for its continued efforts to recognise the inter-related programme and management strategies of the Centre. We believe that a combined review is desirable and the process will, with continued development, give a better balance in the related roles of programme development within supportive management structures. Achieving this balance will require further refinement because the panel members addressing management and programme issues still have separately defined objectives. We believe that in the ILCA Review this may have resulted in inconsistencies, especially in the discussions of aspects of organisational structure and staff functions.

In general, ILCA agrees with the recommendations and suggestions in the panel's report and will endeavour to incorporate them in future management and programme structures. The report arrives at an opportune time as ILCA prepares for the Centre's fourth quinquennium and in 1992, prepares the Centre's new 5-year programme and budget for the years 1993 to 1998. Thus, the recommendations and suggestions of the panel, together with the subsequent TAC and CGIAR comments, will comprise a major input into the formulation of the 5-year Medium Term plan.

We limit our response here to the formal recommendations contained in the report. However they together with all the suggestions made in the text will form a checklist for ILCA's Board and Management against which the follow-up to the EPMR will be monitored.

Chapter 4 Leadership, Research Organisations and Management

Recommendation 4.1.

The ILCA Board of Trustees should whenever possible use the full Board to carry out its business rather than the Executive Committee, and this should include the possibility of convening two Board meetings per year.

This recommendation is already being implemented and the Board is in full agreement. There will be two full Board meetings, in May and in October, already in 1992 accompanied by meetings of the Board Committees. The Executive Committee will act as advisory to the full Board primarily on matters of budget and finance.

The Centre believes that the Programme Committee has been effective in the direction of ILCA's research programme but will endeavour to further increase interaction between the Programme Committee, the Board, and the Centre's research management while being mindful of ILCA's past problems caused by over involvement by the Board in programme direction.

Recommendation 4.2.

A more simplified research management system should be used in the design and implementation of the next medium-term plan

The introduction of the research management matrix was approved by the Board, in response to the programme requirements as perceived by the 1986 EPR. ILCA considers the system to have contributed effectively to the improvement of research management at the Centre, allowing it to have a clear delineation of programme goals and output and to pursue interdisciplinary collaboration more effectively in widely dispersed research teams. Nonetheless, there is agreement with the EPMR Panel that a simplified research management system is advisable, especially since the funding expected in 1987 was not forthcoming. ILCA will address this issue in the preparation of the next medium-term plan.

Recommendation 4.3.

Any restructuring of ILCA's research management should give emphasis to the need to identify senior positions which could supervise the Centre's programmes and give leadership to its research staff.

ILCA concurs that there is scope for restructuring research management in the manner recommended. However, some inconsistency is noted between the recommendation to scale down the number of thrusts and themes and recommendation 4.2. that would, in effect, widen the scope of work in some thrusts.

Recommendation 4.4.

ILCA should consider consolidating network coordination on a regional basis. Network Coordinators could be located in strategic locations in sub-Saharan Africa, and while acting as coordinators for their own networks could also play a liaison role for the other networks in their region.

ILCA is establishing regional offices for programme support which will consolidate the regional administrative requirements of Networks. However, the Network Coordinators can not perform each others duties easily because they have to have high levels of appropriate technical skills. They are not just administrators. Moreover, the Networks are owned by NARS, not ILCA. Any decision that ILCA might wish to obtain with respect to Network Coordinators and their offices, would be subject to the views of the Network Steering Committees.

Chapter 5 Disciplines**Recommendation 5.1.**

ILCA Management should seek further technical advice through consultancies on the methodology of livestock modelling, ruminant nutrition and quantitative epidemiology.

The Centre agrees with this recommendation. Technical advice through consultancies has already been sought in many aspects of the Centre's work, including livestock modelling, agroecological priorities and ruminant nutrition. Quantitative epidemiology which is a newly proposed area for ILCA and the Centre would also need outside technical input. The Centre intends conducting livestock modelling in relation to crops and soils.

ILCA believes that the EPMR suggestion on feed packages has not addressed adequately the issue of delineation of responsibilities between NARS and ILCA. This work is seen by ILCA as necessarily a collaborative effort between the Centre and NARS partners: thus recognising the wide diversity in the extent, complexity and opportunities for development and adaptation of feed packages to local needs.

Recommendation 5.2.

The Position of Head of Plant Sciences should be filled and the Division should increase its input into ILCA's research at zonal sites.

ILCA will fill the position formally called Head of Plant Sciences with the best available staff. However, more consideration will be given to ecology and resource management as well as plant sciences. At present, there is at least one plant scientist and/or agroecologist on each of ILCA's research teams at all zonal sites.

Recommendation 5.3.

Research teams at zonal sites should include full-time agricultural economists on a long-term basis.

There have been agricultural economists based at all of the zonal sites. Those positions currently vacant (Kaduna, Bamako) are under recruitment and will be filled soon. The Centre agrees that there is a continuing need for social scientists in the zonal research site teams. This should not, however, be limited only to agricultural economists since from time to time there may be need for other social science disciplines such as sociology.

Recommendation 5.4.

ILCA should, once again, employ a sociologist at HQ who could interact with economists and Graduate Associates at the zonal sites.

ILCA agrees with the value of sociological input to interdisciplinary farming systems research, particularly when directed to social factors influencing adoption. The Centre will, therefore, endeavour to address the requirement for increased sociology input in its programmes in the next Medium-term Plan. However, the location where such expertise would be stationed as well as the number of scientists needed to achieve critical mass in a discipline needs to be carefully considered, as well as the issue of where Graduate Associates would be deployed, depending primarily on the research priorities at each site.

Recommendation 5.5.

Efforts should be made to ensure disciplinary peer review is available for research in all locations throughout the research process

ILCA agrees and disciplinary peer review is increasingly provided at the zonal research sites in the form of a wide range of Common Interest Groups: that is, peer groups of scientists from throughout the Centre who meet to discuss specific issues such as economics, animal nutrition,

reproduction/health, farming systems research, nutrient cycling etc. as well as, reviewing proposals and research reports. These peer reviews already provide much input into research planning and analysis. Further improvements will be considered by Board and Management.

Recommendation 5.6.

Whenever possible, ILCA's strategic research should be confined to locations with good facilities and the necessary numbers of scientists for effective teamwork.

ILCA endeavours to ensure that all resources needed are available before research of any type is approved. This recommendation, therefore, accords with ILCA's present policy and is a major reason for the decision to decentralise and consolidate research teams as well as the placing of some of the best scientists at the zonal sites rather than at the Addis Ababa headquarters. Critical mass has also, of course, a quality dimension.

Recommendation 5.7.

Site characterization (e.g. soil characterization and on-site variability, climate, socio-economic characterization, etc.) should be a high priority in order to help explain causal relationships and help in extrapolating the results to other locations. Modelling may be useful in providing an understanding of underlying processes.

ILCA agrees. This is an on-going process and models are developed in association with other IARCs and with the International Institute of Applied Systems Analysis and will be continued to cover more zones and wider regions of Africa. Further improvements will be considered by Board and Management.

Recommendation 5.8.

On occasion, ILCA should commission external reviews of particular areas of research and research support to provide independent evaluation and new insights.

ILCA agrees. ILCA has benefited from such evaluations in the past and will continue to use this technique when there is insufficient in-house capacity or when an external view may be preferable.

Recommendation 5.9.

Because of the amounts of research data produced by ILCA, a more efficient co-ordinating and filing/retrieval system for computerizing and archiving the data should be developed.

ILCA agrees. The Centre has developed a Livestock Information Management System (LIMS). LIMS allows storage of data and documentation. It may also be used to archive data/documentation which are stored on diskettes using LIMS. ILCA is seeking ways of coordinating with other IARCs on common data bases for social, economic and ecological data (including GIS). ILCA is also actively involved, with other centres, in advancing better information management technologies for the future.

Chapter 6: Zonal Research Sites**Recommendation 6.1.**

The Vertisol technology should be tested widely and refined in collaboration with NARS, ICRISAT and IBSRAM. Furthermore, ILCA should strengthen its strategic research on resource conservation and management in the crop - livestock systems of the cool tropics (highlands) of sub-Saharan Africa.

The Centre continues to be fully supportive of this recommendation. Additional strategic research on resource conservation and management in the cool tropics may have to be considered, however, relative to the current level of funding and to the relative needs of other agro-ecological zones.

Recommendation 6.2.

ILCA should undertake an agro-ecological study of the research priorities and strategies in peri-urban dairying and assess the relevance of the Mombasa site. The environment of the Mombasa site should be compared with other peri-urban areas, so that the transfer of results can be facilitated.

The Coastal subhumid zone is not one of the largest agro-ecological zones but it does present an unusually good opportunity for research in collaboration with a strong NARS, in a location with a rapidly growing population and an interesting marketing situation. The research being carried out is not site specific since it deals with typical resource and socio-economic constraints in smallholder dairy production. Both the research methodology and the results will be transferable to other agro-ecological sites.

Recommendation 6.3.

ILCA should concentrate its resources in cooperation with ICRISAT on crop - livestock research in the semi-arid zone at the ICRISAT Sahelian Centre (ISC) at Sadore in Niger.

ILCA agrees. The Centre has, since 1987, pursued this strategy.

Recommendation 6.4.

ILCA Management should close its research in Mali and consider concentrating ILCA research in Niamey.

The Centre will review the work of the Bamako site in the next Medium-term Plan. ILCA expects to maintain a programme support office for West Africa in Bamako but research in Mali will primarily be supported through collaborative research support networks. ILCA recognises the benefits of the Mali site in terms of communications, a favourable Memorandum of Agreement with the Government of Mali and suitability for training and regional network coordination. Also, importantly, long-term research on range trends in the Gourma region of Mali continues to be effectively serviced from the Bamako office.

Recommendation 6.5.

ILCA should approach IITA to review the 1983 ILCA/IITA Agreement and accommodate the current needs of ILCA's Humid Zone Programme either at IITA, Ibadan, or the proposed IITA sub-centre at Yaounde.

ILCA will carefully consider the implications of this recommendation and will address it in its Medium-term Plan. IITA is already on record as favourable to both suggestions, pending final agreement on specifics.

The Cameroon Government has allocated about 1000 ha of true humid zone land to IITA at Yaounde. ILCA provided input to baseline surveys of farming systems in the region and wishes to collaborate with IITA there.

Recommendation 6.6.

Because of the continuing importance of small ruminants in the humid zone, ILCA should not do peri-urban dairying research at the expense of the small ruminant/alley farming work. Efforts should be made to ensure continuity of the animal scientists input to small ruminant work from the expert currently handling the Cattle Milk and Meat Thrust and/or through collaborative work with NARS.

ILCA agrees. The work on small ruminants and that on peri-urban dairying are not seen as competing for resources. ILCA will expand research on small ruminants in the humid zone but not at the Ibadan site.

The Centre sees much benefit in expanding the small ruminant/alley farming research through the networks, after having worked on this, on-station and on-farm, for 13 years. ILCA's own research on small ruminants in the humid zones is now expected to focus on trypanotolerance issues, as proposed in a joint ITC/CRTA/ILCA project.

The research on peri-urban dairying takes advantage of IITA's expertise in cropping systems since in this zone good-quality feed can largely be obtained from crop by-products. There is also a strong demand for dairy products that can no longer be met by imports.

Recommendation 6.7.

ILCA Management should inspect working conditions at zonal sites and endeavour to provide a minimum adequate set of equipment and, as a highest priority, solve the serious outstanding housing issues.

ILCA Research Management inspects working conditions at all zonal sites frequently during the year and the equipment necessary to accomplish approved work plans is provided.

This recommendation accords with ILCA's policy to provide the best housing available comparable to that for professional peers resident at sites where ILCA staff are posted. The housing at Ibadan is believed to be the best available, and has been selected by the resident ILCA International staff because of water, electricity, security and location.

Recommendation 6.8.

Adoption studies should continue and have the objectives of not only evaluating impact, but also helping to define priorities for further research and provide information that will assist in the dissemination of technology.

ILCA agrees. Constraint analysis is important in the study of adoption processes. Also, the Centre wishes to emphasise the role of NARS in this process. The factors influencing "adoption" tend to vary among sites; therefore, ILCA utilises networks and other mechanisms to evaluate "adoption" at multiple sites.

Chapter 7 Thrusts and Networks**Recommendation 7.1.**

Possibilities of extending work with reference to village-level milk processing techniques to other countries(e.g. Nigeria), possibly via follow-up activities with former trainees from those countries, should be explored.

The Centre supports the suggestion that the results of the dairy technology work conducted at Debre Zeit can be applied in the humid zone to improve processing efficiency and hygiene. ILCA has trained people from e.g. Nigeria and the Gambia, who are actively/directly involved in promoting milk processing technologies and techniques which they learned at ILCA. To reinforce this, the Dairy Technologist is undertaking (in April) a visit to Nigeria to identify where interventions may be made and to draw up an appropriate programme of milk processing and preservation research.

Recommendation 7.2.

As resources allow, the Thrust should look for trypanotolerant traits in other breeds of cattle in Western, Eastern and Southern Africa and also extend its research on trypanotolerance to small ruminants.

ILCA agrees. Research on small ruminants is expected to expand through the proposed joint ITC/CRTA/ILCA trypanosomiasis/trypanotolerance project. Research with Baoule cattle is planned with CRTA in 1992 and with Djallonke sheep in Côte d'Ivoire and Senegal.

Recommendation 7.3.

A revised edition of the Livestock Systems Research Manual should be produced.

ILCA agrees.

Chapter 8 Sustainability in ILCA's regions**Recommendation 8.1.**

ILCA should systematize its efforts related to sustainability in SSA: by setting up a GIS system in cooperation with other IARCs; by ensuring that its experimental data encompass the necessary parameters for modelling, so that results from particular sites can be generalized to wider areas on the basis of input parameters and by planning sustainable crop - livestock systems on the basis of land evaluation in SSA.

The Centre agrees with the general intent of this recommendation. It already supports initiatives in the semi-arid zone (e.g. nutrient cycling). It envisages that data coming out from Geographic Information Systems (GIS) could be useful in livestock modelling. Given funding restraints, the Centre will explore collaborative modes through which this work could be best promoted. The Centre is already collaborating with FAO on GIS. Relevant livestock-related data may be obtained by tapping technical expertise available in Nairobi (for instance, the FAO-sponsored GIS project, and the work at ILRAD).

Recommendation 8.2.

ILCA should ensure that greater attention is paid to sustainability, through undertaking an adequate ex ante review of SSA sustainability issues relevant to all of its new research projects.

ILCA agrees. At present, the Centre includes sustainability criteria in the evaluation of all its research protocols. The Centre looks at the potential environmental impact of its work. Sustainability issues are central to the research on crop-livestock interactions and nutrient cycling in the drier areas. The Nutrient Cycling Common Interest Group is developing standard protocols and defining minimum essential data sets to facilitate the transferability of research results.

Recommendation 8.3.

In view of TAC's analysis of research priorities in the agro-ecological zones of sub-Saharan Africa and its proposed ecoregional approach to research, ILCA should initiate, and provide the campus in Addis Ababa for an ecoregional Centre for the Highlands zone. ILCA should spearhead collaborative arrangements with other IARCs to contribute complementary expertise towards a holistic programme of research on crop - livestock systems in the highlands.

The Centre is receptive to this recommendation and is looking forward to the reaction of TAC and CGIAR. Yet, the establishment of an ecoregional centre for the highlands on ILCA's campus would require additional resources for the Centre.

If encouraged by TAC, ILCA will propose the modalities of ecoregional collaboration. ILCA has already under taken collaborative linkages with other IARCs; several of these are ecoregional in nature. ILCA will propose in its Medium-term Plan how the Centre can respond to the concept of an ecoregional centre.

Recommendation 8.4.

In view of the acute environmental problems in the warm arid tropics (desertification), and the high cattle populations, ILCA should reconsider the strategic option of not addressing this zone.

ILCA's current strategy and programme emphasises policy and environmental issues in the arid zone; only the option of technology development has been de-emphasised.

The Centre will continue a watching brief on environmental issues in the arid zone through policy research, monitoring range trends and research on resource management. ILCA is helping monitor long-term trends and standardise available data in the Comité Permanent Interetats de Lutte contre la Sêcheresse dans le Sahel (CILSS) region. The Centre will continue to react positively to this approach. In its forthcoming strategy discussion ILCA will consider possible further follow-up to this recommendations. This might include special collaboration with ICARDA, which has a strong programme on desertification in the arid areas of the Maghreb region.

Recommendation 8.5.

The southern subhumid region with substantial potential is a high priority for future ILCA work preferably in combination with other IARCs with crop responsibilities in Africa.

In preparing its next Medium Term Plan, ILCA will examine the relative importance of the different agro-ecological zones for its work and the need for considering other directions and new sites.

The Centre will explore the avenues for collaboration in the central and southern subhumid region. ILCA's Harare office is, we believe, a suitable location for joint collaborative effort between IARCs and regional institutions.

Chapter 9 Training and Information Services**Recommendation 9.1.**

Considering that women constitute an important component of human resources involved in agriculture in sub-Saharan Africa, ILCA should devise means of increasing the proportion of female participants in its training programmes.

ILCA agrees. The Centre will endeavour to increase the number of women researchers trained by ILCA. However, ILCA has a responsibility to run courses that satisfy participants' needs and participants are selected on the basis of qualifications. Within this principle, special efforts will be made to encourage qualified women to apply, and supervisors will be encouraged to nominate more women to ILCA or to give preference to women. The Centre's methods of attracting more women will stress the important role of women in agriculture in ILCA's programmes and ILCA would, therefore, encourage NARS to extend their search for suitable women candidates.

Recommendation 9.2.

ILCA should develop a systematic evaluation scheme to cover the first three years following participants' completion of training programmes to assess the impact of the programmes on the effectiveness of NARS.

The Centre agrees with this recommendation and recognises the need for a continuing rigorous and structured assessment of the impact of ILCA's training activities.

Recommendation 9.3.

ILCA should progressively increase the proportion of professional librarians to ensure it maintains its vital role in strengthening information services to NARS.

While the Centre agrees that it needs professionalism in the library, it also believes that this recommendation confounds ILCA staff grades with professional activities. This issue is not confined to the Department of Training and Information only. The problem appears to be one of semantics. The word "professional" is used at ILCA to describe a category of staff and defines their salary and benefit grades. Staff, such as librarians, have professional qualifications but may not be classified in ILCA's "professional" grades, which are predominately scientists.

Chapter 10 Management of human and financial resources**Recommendation 10.1.**

The Personnel Division should take steps to improve its performance and image as a service office.

Clear personnel policies have been very much the concern of the Centre. The finding of the Panel and their interpretation that the Personnel Division may be too rule bound will be looked into to implement measures for immediate improvements. This will also include the services rendered to the staff by the Finance and General Services Division.

Recommendation 10.2.

The Staff Council of ILCA at HQ should be used more effectively for communication and problem-solving than it is at present.

ILCA Headquarters staff operate in a difficult external environment. They comprise a wide range of staff categories and interests with very diverse needs and expectations. The Centre acknowledges the important role that Staff Council plays in these matters and will further endeavour to expand this role. The Centre accepts the suggestion that improved communication and problem-solving might be facilitated by meeting the different staff groups at ILCA separately, in order to get a better knowledge of the problems these groups consider important in relation to their work and living conditions. The Board will at its future meetings regularly reserve time to meet with staff representatives.

Recommendation 10.3.

It is not necessary to have a Director of Administration as well as a Head of General Services, but ILCA Management should determine which is the more appropriate position to be filled.

ILCA has appointed a Head of General Services and for the time being does not intend to appoint a Director of Administration. This decision will be reviewed from time to time in the light of evolving administrative requirements.

Recommendation 10.4.

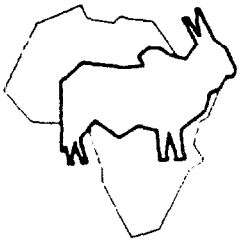
ILCA should review general services and administrative support needed for the expected operations in Ethiopia and for the decentralized zonal sites, and the desirable relationships between these.

ILCA agrees with the importance of this issue and had proposed Headquarters/Zonal site services as a central role for the Director of Administration. The Centre will now evolve alternative mechanisms and steps have already been taken to strengthen administrative support for the zonal sites through structures established within the office of the Deputy Director General (Research).

Chapter 11 External relationships**Recommendation 11.1.**

A complete merger between ILRAD and ILCA is not recommended at this time. Cooperation should be increased in respect of planning by both centres and in respect of use of ILRAD's scientific techniques in ILCA research. The possibility of a partial merger should be considered at the time of the next review of both Centres

ILCA agrees with this recommendation. Collaboration with ILRAD is considered in ILCA to be excellent and a large part of ILCA's trypanosomiasis and trypanotolerance work with NARS is already making use of ILRAD's scientific techniques. The Nominations Committee will now endeavour to fill one of the future Board vacancies with a current suitable member of ILRAD's Board. Joint sessions of the Programme Committees of both Boards will be considered between the two centres.



ADDIS ABABA ETHIOPIA

January 23, 1992

Dr. Alex F. McCalla
Chairman
Technical Advisory Committee/CGIAR
University of California
Davis, CA 95616
USA

Dr. Alexander von der Osten
Executive Secretary
CGIAR
World Bank
1818 H Street, N.W.
Washington, D.C. 20433
USA

Dear Alex and Alexander,

I am pleased to transmit to you on behalf of the Panel, the Report of the Third External Programme and Management Review of the International Livestock Centre for Africa (ILCA).

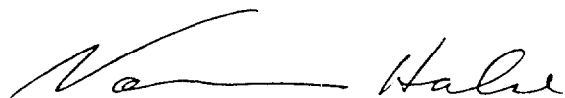
The Review covers a five-year period during which ILCA underwent a major reorganization and reorientation of its programmes. In reviewing ILCA's activities and experience during this period, the Panel has sought to assist ILCA to capitalize on this experience and change course accordingly. In preparing our Report we have also taken into account as much as possible, the new directions which TAC has been charting for the CGIAR.

We have tried to write a brief report in the belief that our readers are busy people. However we gave very serious thought to all of our recommendations and hope they make a useful contribution to ILCA's work.

Our task has not been easy. ILCA has an extremely important but difficult and complex research mandate. In the course of our deliberations, we have recognized the value of having a single Panel to address both programme and management issues. In managing a Centre, the sometimes competitive needs of programmes and management have to be reconciled and our Panel had to achieve the same reconciliation. Further than that, the different backgrounds and experience of management and programme Panel members provided a broader perspective against which to assess the Centre's work and test our suggestions. Each member of the Panel contributed unstintingly to the Review. I especially appreciated the many long and frank discussions which led us to full consensus on the Report.

We appreciated the Centre's efforts to assist our task through the extensive documentation provided and the excellent logistical arrangements which they made for us during the preparation of the Report. I hope that our Report will be taken in the constructive spirit which is intended.

Yours sincerely,

A handwritten signature in cursive script, appearing to read 'Norman J. Halse'.

Norman J. Halse
(Panel Chairman)

**THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
TECHNICAL ADVISORY COMMITTEE AND CGIAR SECRETARIAT**

**REPORT OF THE THIRD EXTERNAL PROGRAMME AND MANAGEMENT REVIEW
OF THE
INTERNATIONAL LIVESTOCK CENTRE FOR AFRICA
(ILCA)**

Panel: Norman J. Halse (Chairman)

Jozef Deckers

Jacob E. Hautaluoma

Anselm B. Lwoga

Walter N. Masiga

David W. Norman

Julie A.C. Virgo

Dirk Zwart

Eric T. Craswell (TAC Secretariat)

Elizabeth M. Field (CGIAR Secretariat)

Pilar San Jose (Resource Person, Finance)

TAC SECRETARIAT

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

January 1992

TABLE OF CONTENTS

SUMMARY AND RECOMMENDATIONS	xxxix
CHAPTER 1 - INTRODUCTION	1
1.1. ILCA's Origin and Evolution	1
1.2. ILCA's Response to the Second External Programme Review (EPR) and First External Management Review (EMR)	2
1.2.1. ILCA's Response to the Second External Programme Review	2
1.2.2. ILCA's Response to the First External Management Review	2
1.3. Terms of Reference and Conduct of the 1991-92 Review	3
1.4. Perspective	3
1.4.1. Priorities and Strategies for Livestock Research in Africa	3
1.4.2. ILCA in an Evolving CGIAR	4
CHAPTER 2 - LEGAL STATUS, MANDATE AND GOVERNANCE	6
2.1. Legal Status of ILCA	6
2.1.1. Ethiopia	6
2.1.2. ILCA in Other Countries	6
2.2. ILCA's Mandate	7
2.3. The Board of Trustees	9
2.3.1. Membership	9
2.3.2. Committee Structure	10
CHAPTER 3 - STRATEGIES AND PRIORITIES	13
3.1. Overview	13
3.2. The Planning Process	13
3.2.1. Strategic Planning	13
3.2.2. Medium-Term Planning	14
3.2.3. Annual Planning	15
3.3. Results of the Planning Process	16
3.3.1. Balance Between Main Programme Responsibilities	16
3.3.2. Type of Research	17
3.3.3. Headquarters Versus Zonal Work	18
3.3.4. Agro-Ecological Regions: Need and Payoff	18

3.3.5. The Influence of Impact on Resource Allocation	19
3.3.6. Other Factors Influencing Resource Allocation	19
CHAPTER 4 - LEADERSHIP, RESEARCH ORGANIZATION AND MANAGEMENT	23
4.1. Organizational Culture	23
4.2. Leadership	24
4.2.1. Leadership by the Board	24
4.2.1.1. Role in Policy Making and Oversight	24
4.2.1.2. Management of Board Business	26
4.2.1.3. Board-Management Relations	27
4.2.2. Leadership by Senior Management	27
4.3. Research Structure and Staffing	30
4.3.1. Organizational Structure	30
4.3.2. Staffing	32
4.4. Programme Management	32
4.4.1. Planning and Review Processes	32
4.4.2. Management of Projects and Activities: An Assessment	33
CHAPTER 5 - DISCIPLINES	36
5.1. Introduction	36
5.1.1. Resource Allocation	36
5.1.2. Scientific Impact	36
5.1.3. Recommendations	37
5.2. Animal Science Division	37
5.2.1. Objectives	37
5.2.2. Activities	38
5.2.3. Assessment	38
5.3. Plant Science Division	40
5.3.1. Forage Agronomy	40
5.3.1.1. Objectives	40
5.3.1.2. Activities	40
5.3.1.3. Assessment	41
5.3.2. Soil Science and Plant Nutrition	41
5.3.2.1. Objectives	41
5.3.2.2. Activities	41
5.3.2.3. Assessment	42
5.3.3. Forage Genetic Resources	42
5.3.3.1. Objectives	42
5.3.3.2. Activities	42
5.3.3.3. Assessment	43

5.4.	Livestock Economics Division	43
5.4.1.	Objectives	43
5.4.2.	Activities	43
5.4.3.	Assessment	44
5.4.4.	Recommendations	45
5.5.	Research Support	45
5.5.1.	Introduction	45
5.5.2.	Computer and Biometrics Section	46
5.5.2.1.	Activities	46
5.5.2.2.	Assessment	46
5.5.3.	Nutrition Laboratory	47
5.5.3.1.	Activities	47
5.5.3.2.	Assessment	47
5.5.4.	Soil Science and Plant Nutrition Laboratory	47
5.5.4.1.	Activities	47
5.5.4.2.	Assessment	47
5.6.	General Recommendations	48
CHAPTER 6 - ZONAL RESEARCH SITES		49
6.1.	Overall Setting	49
6.2.	Highlands - Ethiopia	49
6.2.1.	Setting	49
6.2.2.	Programmes	49
6.2.3.	Assessment	51
6.2.4.	Recommendations	52
6.3.	Subhumid - Kenya	53
6.3.1.	Setting	53
6.3.2.	Programmes	53
6.3.3.	Assessment	54
6.3.4.	Recommendations	55
6.4.	Semi-arid - Niger	56
6.4.1.	Setting	56
6.4.2.	Programmes	56
6.4.3.	Assessment	57
6.4.4.	Recommendations	58
6.5.	Subhumid - Mali	59
6.5.1.	Setting	59
6.5.2.	Programmes	59
6.5.3.	Assessment	60
6.5.4.	Recommendations	61

6.6.	Subhumid - Nigeria	61
6.6.1.	Setting	61
6.6.2.	Programmes	61
6.6.3.	Assessment	62
6.6.4.	Recommendations	63
6.7.	Humid - Nigeria	63
6.7.1.	Setting	63
6.7.2.	Programmes	64
6.7.3.	Assessment	64
6.7.4.	Recommendations	65
6.8.	General Recommendations on Zonal Sites	66
CHAPTER 7 - THRUSTS AND NETWORKS		68
7.1.	Introduction	68
7.2.	Cattle Milk and Meat Thrust	69
7.2.1.	Goals and Themes	69
7.2.2.	Sites	70
7.2.3.	Assessment	70
7.2.4.	Recommendations	71
7.3.	Small Ruminant Meat and Milk Thrust	71
7.3.1.	Goals and Themes	71
7.3.2.	Sites	72
7.3.3.	Assessment	72
7.3.4.	Recommendations	73
7.4.	Animal Traction Thrust	73
7.4.1.	Goals and Themes	73
7.4.2.	Sites	74
7.4.3.	Assessment	74
7.4.4.	Recommendations	76
7.5.	Animal Feed Resources and Resource Use Thrust	76
7.5.1.	Goals and Themes	76
7.5.2.	Sites	77
7.5.3.	Assessment	77
7.6.	Trypanotolerance Thrust	79
7.6.1.	Goals and Themes	79
7.6.2.	Sites	80
7.6.3.	Assessment	80
7.6.4.	Recommendations	81

7.7.	Livestock Policy Thrust	82
7.7.1.	Goals and Themes	82
7.7.2.	Sites	82
7.7.3.	Assessment	83
7.7.4.	Recommendations	84

CHAPTER 8 - SUSTAINABILITY IN ILCA'S AGRO-ECOLOGICAL REGIONS

8.1.	Sustainability	86
8.2.	Strategic Choice of Ecologies	86
8.2.1.	Agro-ecological zoning in SSA	86
8.2.2.	ILCA's Programmes by AEZ	88
8.2.2.1.	Warm Arid Tropics	88
8.2.2.2.	Other agroecological zones	89
8.3.	Sustainability Dimension of ILCA's Research in SSA	92
8.4.	Recommendations	94

CHAPTER 9 - TRAINING AND INFORMATION

9.1.	Overview	96
9.2.	Training	96
9.2.1.	Individual Training	97
9.2.2.	Group Training	98
9.2.3.	Training Materials and Methods	99
9.2.4.	Assessment	99
9.2.5.	Recommendations	100
9.3.	Publications	101
9.4.	Translation and Interpretation	102
9.5.	Library and Information Services	103
9.6.	Records Management and Archives	105

CHAPTER 10 - MANAGEMENT OF HUMAN AND FINANCIAL RESOURCES

10.1.	Human Resources	106
10.1.1.	Overview	106
10.1.2.	Composition of the Staff	106
10.1.3.	Personnel Policies and Procedures	107

10.1.4. Recruitment and Turnover	108
10.1.5. Orientation	109
10.1.6. Compensation	109
10.1.7. Performance Evaluation	110
10.1.8. Staff Development	111
10.1.9. Internal Communications	111
10.1.10. Gender Issues	113
10.1.11. Assessment	113
10.2. Management of Financial Resources	113
10.2.1. Organization of Financial Management	113
10.2.2. Source of Funds	115
10.2.2.1. ILCA's Funding Base	115
10.2.2.2. Funding Policy and Strategy	116
10.2.2.3. In-Trust Funds	117
10.2.3. Financial Performance of ILCA	117
10.2.3.1. Actual 1986-91 Experience Compared to ILCA's Medium Plan ...	118
10.2.4. Financial Liquidity and Cash Management	120
10.2.5. Financial Planning and Programme Budgeting	121
10.2.6. Implications of Decentralization on the Financial Organization	122
10.2.7. Internal Audit	122
10.2.8. External Audit	123
10.3. Administration	123
10.3.1. Overview - Organization and Staffing	123
10.3.2. General Services	124
10.3.3. Housing and Catering Services Section	125
10.3.4. Physical Plant Services Section	126
10.3.5. Procurement and Stores	127
10.3.6. National Liaison	127
10.3.7. Overall Assessment and Key Issues	127
CHAPTER 11 - EXTERNAL RELATIONSHIPS	129
11.1. Overview - ILCA's Stakeholders	129
11.2. Relationships with Host Countries and NARS	129
11.3. Relationships with IARCs	131
11.4. Relationship with ILRAD	132
11.4.1. Introduction	132
11.4.2. Present Situation	132
11.4.3. Trypanotolerance Research	132
11.4.4. Assessment	133
11.4.5. Recommendations	134

11.5. Institutions in Developed Countries	134
11.6. Donors	135
11.7. Assessment	135
CHAPTER 12 - OVERALL ASSESSMENT	136
12.1. Introduction	136
12.2. Impact and Potential Value of ILCA's work	136
12.3. Management	137
12.4. Balance in Programmes	138
12.5. Focus	139
12.6. Agro-ecological Zones	139
12.7. Cooperation with ILRAD	140
12.8. The Future	141
ACKNOWLEDGEMENTS	142
 APPENDIX I.1. Assessment of ILCA's Progress in Implementing the Recommendations of the 1986 External Programme Review	
 APPENDIX I.2. Assessment of ILCA's Progress in Implementing the Recommendations of the 1986 External Management Review	
 APPENDIX II. Second External Programme and Management Review of ILCA Panel Composition and Biographical Information	
 APPENDIX III. Terms of Reference for External Reviews of CGIAR Centres	
 APPENDIX IV. Conduct of the Review and list of Institutions Visited and Individuals met by the Review Panel	
 APPENDIX V. Countries in sub-Saharan Africa Aggregated into Agro-ecological Regions	
 APPENDIX VI. Survey of Activities of ILCA International Professional Staff in the Research Department	

- APPENDIX VII. Survey on ILCA and ILRAD Programmes: Assessing Past Performance and Future Needs**
- APPENDIX VIII. List of Papers Supplied by ILCA to the Panel**
- APPENDIX IX. Acronyms and Abbreviations**

SUMMARY AND RECOMMENDATIONS

SUMMARY

ILCA - Perspective

Nearly twenty years after the establishment of ILCA in Addis Ababa, livestock production is still critically important to the economies of many countries in sub-Saharan Africa. Recent projections show that population growth and increasing urbanization of the population in the region may increase demand for livestock products at rates as high as 4% per annum. The need to expand production has never been more certain but this expansion must not be at the expense of the natural resource base. The Technical Advisory Committee (TAC) of the Consultative Group for International Agricultural Research (CGIAR) has recently emphasized the importance of the issue of sustainability in agricultural research. TAC proposed that an ecoregional approach is needed to tackle the resource management problems.

The 1986 external programme and management reviews recommended that ILCA develop more focus in its programmes. In response ILCA undertook a major strategic planning exercise which organized research objectives into six thrusts. A medium-term plan was developed which increased the decentralization of programmes to zonal sites, and introduced matrix management. An analysis of the effectiveness of this approach was one of the key tasks of this Review. The Review also considered broader aspects of ILCA's management, its scientific programmes and its future priorities and strategies.

Impact

The Panel found evidence of adoption of practices arising from ILCA's work, although it recognized that adoption of new technologies in Africa is slow for many reasons. ILCA research on fodder banks in subhumid Nigeria, the broadbed and furrow maker for Vertisols, the alley farming systems based on browse shrub legumes, and trypanotolerance in cattle will make major contributions to livestock production in the long-term.

Many African livestock research leaders believe that the greatest contribution made by ILCA to livestock research in Africa is through the improvements it brings to national livestock research capacity. One of ILCA's strengths is its interaction with livestock research leaders and NARS in sub-Saharan Africa. In this regard ILCA occupies a key position in any strategy to build Africa's livestock production.

Management

ILCA's Board takes its duties seriously and cooperates well with the Director General. The Panel considers that financial management is competent. Budgetary constraints are apparent. ILCA needs to make important choices in resource allocation in its new medium-term plan. Human resource management and internal communications are a concern. The Panel has some suggestions about how the Board and Management should address the issue of staff morale.

The research management system at ILCA is a dispersed matrix system based on a series of cost centres including zonal team sites and discipline groups who submit projects under six thrust headings. This approach helps in the identification of focus and the emphasis on interdisciplinary work but the Panel felt that leadership needed strengthening and modifications made to the system.

Research Programmes

The research thrusts are concerned with Cattle Milk and Meat, Small Ruminants Meat and Milk, Animal Traction, Livestock Policy, Animal Feed Resources and Trypanotolerance. Programmes target small farmers and agropastoralists, in semi-arid subhumid, humid, and highland zones where zonal research sites have been established. The important issue of sustainability in the arid zone does however, deserve more attention.

The Panel feels that ILCA should maintain a strong and balanced representation in its key disciplinary areas -- animal science, plant science and economics. Nevertheless ILCA has a comparative advantage in interdisciplinary work based on a farming systems approach. Strategic research is not precluded but should focus on problems identified from the farming systems studies. The thrust structure provides an appropriate framework but should be modified to sharpen the focus of the research programmes.

Agro-ecological Strategy

The Panel's analysis of priorities in the agro-ecological regions in which ILCA operates suggests that ILCA should reorganize its subhumid and humid zone research in cooperation with crop research centres such as ICRISAT and IITA, using the collaborative model of the ICRISAT Sahelian Centre in Niamey in semi-arid West Africa. On the other hand, crop research inputs into the ILCA Highlands Programme are also needed.

Cooperation with ILRAD

The Panel was asked to review ILCA's collaboration with the International Laboratory for Research on Animal Diseases (ILRAD). The past collaboration on trypanotolerance has been excellent but even closer cooperation, particularly in strategic planning, would be beneficial to both Centres.

The Future

ILCA should continue to concentrate on research and associated activities that strengthen national livestock research institutions. However, the latter activity could be enhanced through more ILCA involvement in channelling donor funds to NARS. The research should focus on livestock farming systems, especially crop-livestock systems, and strategic and applied aspects of livestock research. ILCA should also continue to lead and support cooperative research networks with NARS.

RECOMMENDATIONS

The Panel has made 37 recommendations. These are listed in the order they appear in the Report.

CHAPTER 1 - INTRODUCTION

No recommendations.

CHAPTER 2 - LEGAL STATUS, MANDATE AND GOVERNANCE

No recommendations.

CHAPTER 3 - STRATEGIES AND PRIORITIES

No recommendations.

CHAPTER 4 - LEADERSHIP, RESEARCH ORGANIZATION AND MANAGEMENT

- 4.1 The ILCA Board of Trustees should whenever possible use the full Board to carry out its business rather than the Executive Committee, and this should include the possibility of convening two Board meetings per year.
- 4.2. A more simplified research management system should be used in the design and implementation of the next medium-term plan.
- 4.3. Any restructuring of ILCA's research management should give emphasis to the need to identify senior positions which could supervise the Centre's programmes and give leadership to its research staff.
- 4.4. ILCA should consider consolidating network coordination on a regional basis. Network Coordinators could be located in strategic locations in sub-Saharan Africa, and while acting as coordinators for their own network could also play a liaison role for the other networks operating in their region.

CHAPTER 5 - DISCIPLINES

- 5.1. ILCA Management should seek further technical advice through consultancies on the methodology of livestock modelling, ruminant nutrition and quantitative epidemiology.
- 5.2. The position of Head of Plant Science should be filled and the Division should increase its input into ILCA's research work at zonal sites.

- 5.3. Research teams at all zonal sites should include full-time agricultural economists on a long-term basis.
- 5.4. ILCA should, once again, employ a sociologist at HQ who could interact with economists and Graduate Associates at the zonal sites.
- 5.5. Efforts should be made to ensure disciplinary peer review is available for research in all locations throughout the research process.
- 5.6. Whenever possible, ILCA's strategic research should be confined to locations with good facilities and the necessary numbers of scientists for effective teamwork.
- 5.7. Site characterization (e.g. soil characterization and on-site variability, climate, socio-economic characterization, etc.) should be a high priority in order to help explain causal relationships and help in extrapolating the results to other locations. Modelling may be useful in providing an understanding of underlying processes.
- 5.8. On occasion, ILCA should commission external reviews of particular areas of research and research support to provide independent evaluation and new insights.
- 5.9. Because of the amounts of research data produced by ILCA, a more efficient coordinated filing/retrieval system for computerizing and archiving the data should be developed.

CHAPTER 6 - ZONAL SITES

- 6.1. The Vertisol technology should be tested widely and refined in collaboration with NARS, ICRISAT and IBSRAM. Furthermore, ILCA should strengthen its strategic research on resource conservation and management in the crop-livestock systems of the cool tropics (highlands) of sub-Saharan Africa.
- 6.2. ILCA should undertake an agro-ecological study of the research priorities and strategies in peri-urban dairying and assess the relevance of the Mombasa site. The environment of the Mombasa site should be compared with other peri-urban areas, so that the transfer of the results can be facilitated.
- 6.3. ILCA should concentrate its resources in cooperation with ICRISAT on crop - livestock research in the semi-arid zone at the ICRISAT Sahelian Centre ISC at Sadore in Niger.
- 6.4. ILCA Management should close its research site in Mali and consider concentrating ILCA research in Niamey.

- 6.5. ILCA should approach IITA to review the 1983 ILCA/IITA Agreement and accommodate the current needs of ILCA's Humid Zone Programme either at IITA, Ibadan, or the proposed IITA sub-centre at Yaounde.
- 6.6. Because of the continuing importance of small ruminants in the humid zone, ILCA should not do peri-urban dairying research at the expense of the small ruminant/alley farming work. Efforts should be made to ensure continuity of the animal scientist input to small ruminant work from the expert currently handling the Cattle Milk and Meat Thrust and/or through collaborative work with the NARS.
- 6.7. ILCA Management should inspect working conditions at zonal sites and endeavour to provide a minimum adequate set of equipment and, as a highest priority, solve the serious outstanding housing issues.
- 6.8. Adoption studies should continue and have the objectives of not only evaluating impact, but also helping to define priorities for further research and provide information that will assist in the dissemination of technology.

CHAPTER 7 - THRUSTS AND NETWORKS

- 7.1. Possibilities of extending work with reference to village-level milk processing techniques to other countries (e.g. Nigeria), possibly via follow-up activities with former trainees from those countries, should be explored.
- 7.2. As resources allow, the Thrust should look for trypanotolerant traits in other breeds of cattle in Western, Eastern and Southern Africa and also extend its research on trypanotolerance to small ruminants.
- 7.3. A revised edition of the Livestock Systems Research Manual should be produced.

CHAPTER 8 - SUSTAINABILITY IN ILCA'S REGIONS

- 8.1. ILCA should systematize its efforts related to sustainability in SSA: by setting up a GIS system in cooperation with other IARCs; by ensuring that its experimental data encompass the necessary parameters for modelling, so that results from particular sites can be generalized to wider areas on the basis of input parameters and by planning sustainable crop - livestock systems on the basis of land evaluation in SSA.
- 8.2. ILCA should ensure that greater attention is paid to sustainability, through undertaking an adequate ex ante review of SSA sustainability issues relevant to all of its new research projects.
- 8.3. In view of TAC's analysis of research priorities in the agro-ecological zones of sub-Saharan Africa and its proposed ecoregional approach to research, ILCA should initiate, and provide the campus in Addis Ababa for, an ecoregional Centre

for the highlands zone. ILCA should spearhead collaborative arrangements with other IARCs to contribute complementary expertise towards a holistic programme of research on crop - livestock systems in the highlands.

- 8.4. In view of the acute environmental problems in the warm arid tropics (desertification), and the high cattle populations, ILCA should reconsider the strategic option of not addressing this zone.
- 8.5. The southern subhumid region with substantial potential is a high priority for future ILCA work preferably in combination with other IARCs with crop responsibilities in Africa.

CHAPTER 9 - TRAINING AND INFORMATION SERVICES

- 9.1. Considering that women constitute an important component of the human resources involved in agriculture in sub-Saharan Africa, ILCA should devise means of increasing the proportion of female participants in its training programmes.
- 9.2. ILCA should develop a systematic evaluation scheme to cover the first three years following participants' completion of training programmes to assess the impact of the programmes on the effectiveness of NARS.
- 9.3. ILCA should progressively increase the proportion of professional librarians to ensure it maintains its vital role in strengthening information services to NARS.

CHAPTER 10 - MANAGEMENT OF HUMAN AND FINANCIAL RESOURCES

- 10.1. The Personnel Division should take steps to improve its performance and image as a service office.
- 10.2. The Staff Council of ILCA at HQ should be used more effectively for communication and problem-solving than it is at present.
- 10.3. It is not necessary to have a Director of Administration as well as a Head of General Services, but ILCA Management should determine which is the more appropriate position to be filled.
- 10.4. ILCA should review general services and administrative support needed for the expected operations in Ethiopia and for the decentralized zonal sites, and the desirable relationships between these.

CHAPTER 11 - EXTERNAL RELATIONSHIPS

- 11.1. A complete merger between ILRAD and ILCA is not recommended at this time. Cooperation should be increased in respect of planning by both centres and in respect of use of ILRAD's scientific techniques in ILCA's research. The possibility of a partial merger should be considered at the time of the next review of both Centres.

CHAPTER 12 - EXTERNAL RELATIONSHIPS

No recommendations.

CHAPTER 1 - INTRODUCTION

1.1. ILCA's Origin and Evolution

Nearly twenty years ago the Task Force Report on Animal Production and Research in Tropical Africa stated: "The present level of animal production in Africa is well below its potential. On grounds of economic growth, human nutrition and welfare, trade balances and the conservation of deteriorating rangeland resources there is an urgent case for trying to secure its improvement." The Task Force, chaired by Prof. D. E. Tribe, went on to recommend the establishment of a research centre to address these problems. The Report also recommended that the new Centre should establish the closest possible liaison with the (then) planned International Laboratory for Research on Animal Diseases (ILRAD). The proposals were intentionally flexible and provided for amalgamation of the two centres, if this was considered appropriate.

The Consultative Group for International Agricultural Research (CGIAR) and its Technical Advisory Committee (TAC) largely endorsed the Tribe report and the World Bank, assisted by the International Development Research Centre (IDRC) of Canada, initiated action to establish the new Centre. The International Livestock Centre for Africa (ILCA) was established in October 1973 through a Letter of Understanding signed between the Government of Ethiopia and the World Bank acting on behalf of the CGIAR. Subsequent agreements firmly established ILCA as an international centre with a headquarters in Addis Ababa. ILRAD was also established in 1973 as a separate independent laboratory in Nairobi.

The evolution of ILCA can be characterised in quinquennia which coincide with the intervals between successive internal reviews -- 1976-81, 1981-86, 1986-91. In the first five years, ILCA pursued a systems approach to research which gathered valuable baseline data on the socio-economic conditions, agro-ecological characteristics and resource inventory of African livestock farmers. However, the first external programme review in 1981 recommended that ILCA focus its research towards technical interventions. In the period 1981-86, ILCA therefore continued some system studies but also placed emphasis on developing component technologies based on more in-depth research.

Details of the recommendations of the 1986 external programme and management reviews are considered below. In general, these reports noted the progress made by ILCA in its first 10 years but recommended further focussing of the Centre's research programmes. In response ILCA undertook a comprehensive strategic planning exercise which proposed research objectives under six thrusts. The strategy paper formed the basis for a Medium-Term Plan (MTP) for the period 1988-93, during which the annual budget was projected to increase from US \$ 19.8 million to US \$ 36.5 million. The term of the MTP coincides with much of the 1987-91 period covered by this review.

1.2. ILCA's Response to the Second External Programme Review (EPR) and First External Management Review (EMR)

The 1986 EPR contained 78 recommendations (one of which was a "strong recommendation") and the 1986 EMR contained 36 (seven of which were "strong recommendations"). Appendix I lists these recommendations and indicates how, in the opinion of this Panel, the Centre responded: fully, partially, or not at all. The Panel's assessment is based on its judgement of the effort made by ILCA to implement the recommendations, not necessarily the result of this effort. It also includes brief comments concerning the Centre's response. Many of these points are discussed further in appropriate sections of this (1992) report.

1.2.1. ILCA's Response to the Second External Programme Review

Appendix I.1 shows that of the 78 recommendations made by the 1986 EPR Panel, ILCA fully implemented 52. The Centre partially implemented 15, and took no action on 11 recommendations. Many of the recommendations were taken into account in the development of the ILCA Strategy and Long-term Plan and the Medium-Term Plan (1988-93).

Several of the recommendations (numbers 32, 33, 59, 61, 63 and 65) not implemented were concerned with aspects of research on rangelands and drought prediction in pastoral areas where ILCA has cut back its activities due to lack of resources. Our views on this decision are given in Sections 7.4 and 8.3. Other recommendations were not implemented due to factors beyond ILCA's control (numbers 13 and 58) or for administrative reasons (number 69).

1.2.2. ILCA's Response to the First External Management Review

As Appendix I.2 indicates, ILCA has fully carried out 30 of the 36 recommendations of the 1986 EMR, and has partially implemented the other six recommendations.

The Panel notes that since 1986 there have been significant changes at ILCA in accordance with the EMR that have required the concerted effort of Centre staff, Management and the Board. These include the:

- development of a strategy;
- establishment of a project-based budgeting system;
- improvements in Board - Management relations; and
- development of a matrix-style organisational programme structure.

1.3. Terms of Reference and Conduct of the 1991-92 Review

The External Review Panel (composition listed in Appendix II) was engaged independently to appraise ILCA's activities, using the Terms of Reference (see Appendix III) provided by TAC and the CGIAR Secretariat. In broad terms, the Panel was asked to assess the recent evolution of ILCA, its mandate, strategy, organisation, management, and programmes. In addition, the Panel was expected to review ILCA's methods for ensuring the quality and relevance of its activities, services and outputs. Other issues to be assessed included ILCA's collaboration with NARS, CGIAR and other relevant institutions, achievements and impact, and the adequacy of resources available for its current and proposed activities.

Appendix IV describes the conduct of the review and gives a list of institutions visited and individuals met by the Panel.

1.4. Perspective

1.4.1. Priorities and Strategies for Livestock Research in Africa

The critical importance of livestock in the economies of the countries of sub-Saharan Africa is indicated by the fact that meat, milk and eggs constitute about 17% of the total agricultural GDP. The value of draught power and manure substantially increases the significance of livestock. Recently the Winrock International Institute for Agricultural Development, supported by a number of agencies including ILCA, ILRAD and TAC, undertook the "Assessment of Animal Agriculture in sub-Saharan Africa." The draft Report available to the Panel points out that the population of sub-Saharan Africa is projected to increase from about 500 million in 1990 to 1,300 million by 2025; the proportion of urban population will increase from 29% to 54%. Based on a 4% growth in total demand for livestock products, 19 million tonnes of meat and 48 million tonnes of milk will be consumed in 2025, compared with present consumption levels of 4.5 million tonnes of meat and 11 million tonnes of milk. The draft Report projects a 3.3% annual increase in red meat production (compared with 1.3% in the 1980s), and a 5% growth in white meat production, reaching a total meat production level of 18 million tonnes in 2025.

The optimistic projections of production growth in the draft Winrock Report are based on the assumption of major technological innovation and adoption -- increased feed production and higher livestock productivity -- supported by appropriate government investment policies. The forage supplies required will be enormous. It is evident that grain production will need to increase dramatically -- i.e. at 4% per annum -- to meet the demand for food and feed. The draft Report suggests that the main areas for growth will be in crop - livestock systems and small-scale intensive production systems in sub-humid areas, with potential for additional growth in the semi-arid areas.

The draft Winrock Report provides a useful analysis of the key economic and technical issues shaping strategies for research on feed supply, animal health, genotype, livestock management, natural resources and the economics of livestock production. As ILCA plans for the next five years and beyond, its strategic planning process must take into account not only the research needs and priorities, but also its special role as a CGIAR Centre and the necessity to forge and manage new research partnerships and alliances.

1.4.2. ILCA in an Evolving CGIAR

Recently the CGIAR, led by TAC, has been reviewing the size and scope of its programmes and re-examining its priorities and strategies on a system-wide basis. The following emerging issues are relevant to ILCA and this Review:

- the CGIAR goals have been amended to embrace self-reliance rather than self-sufficiency;
 - the sustainability of production systems has been re-emphasized and this emphasis expanded to include research on forestry and agroforestry;
 - the recognition that, while strengthening NARS through training and institution-building is an important task in regions such as sub-Saharan Africa, the lack of coordination of CGIAR centre efforts in this area is creating problems; and
- the need to strengthen strategic research on the management and conservation of natural resources.

The last two issues influenced TAC to recommend that the CGIAR be re-structured into entities with global commodity and subject-matter responsibilities or with ecological mandates regionally defined. Eco-regional entities would coordinate and strengthen links with NARS and focus research on the improvement of sustainable production systems in a mandated area. If this ecoregional concept is to be implemented, CGIAR centres will have to come together to redefine strategic directions and, as appropriate, consider possibilities of institutional realignment. The commitment of the CGIAR to livestock research -- both in Africa and globally -- will need to be addressed in this context.

New stresses on populations and the environment, and the expansion and evolution of the CGIAR System, present centre scientists with challenging problems to solve and promising areas to explore. However, funding in the System has levelled off in nominal terms and, in real terms, has declined. Consequently now, perhaps more than ever before, CGIAR centres must define their priorities clearly and develop strategies to achieve them. Furthermore, they must re-assess their modes of operation in an effort to

increase efficiencies, yet in ways that facilitate and enhance the creative processes that are the source of scientific and technical innovation.

It was with this background and these future challenges in mind that our Panel undertook the 1992 external review of ILCA.

CHAPTER 2 - LEGAL STATUS, MANDATE AND GOVERNANCE

2.1. Legal Status of ILCA

2.1.1. Ethiopia

The New Government. On May 27, 1991 the Government of the People's Democratic Republic of Ethiopia was replaced by the Ethiopian People's Revolutionary Democratic Front (EPRDF). In the following week, the Leader of the EPRDF announced that the Transitional Government would honour all international agreements of the previous government.

The Revised Agreement. Earlier this year, on March 14, ILCA signed a Revised Agreement with the Ethiopian Government, replacing the Agreement of May 1987. The new document raises ILCA's status from the somewhat vague status of "international in character" to an "organization enjoying, for purposes of privileges and immunities, a status comparable to that accorded by the Government to international organizations operating in Ethiopia" (Article 7.1). In addition, the Agreement contains a new covenant that accords diplomatic status to the Director General, Deputy Director General and their families (Article 13.3). Although Article 7 does not provide for a defined set of international privileges and immunities, it opens the door for future improvements in ILCA's arrangements, by putting ILCA on a par with international organizations which enjoy superior privileges and immunities. The Panel commends the Centre for its progress in this area, and expects that Management will move ahead in its talks with the new Government at an opportune time.

ILCA's Charter Provisions. ILCA's Agreement with the Government of Ethiopia is unusual among CG-type centres in that it contains, in one single document, the Centre's privileges and immunities in Ethiopia, in addition to provisions normally found in a separate Charter document. This has the theoretical disadvantage that ILCA must seek the agreement of the Government of Ethiopia in order to change the Board or the Centre's mandate. Although this has not been a problem in the past, the Panel suggests that, at an appropriate time, ILCA undertake discussions with the Government of Ethiopia to modify this arrangement by amendment to the Agreement.

2.1.2. ILCA in Other Countries

ILCA now has Memoranda of Agreement with 17 African governments compared to 11 in 1986. The new agreements are with Cameroon (1989), Guinea (1989), Madagascar (1991), Sudan (1988), Zaire (1991), and Zimbabwe (1989). ILCA successfully negotiated the quite favourable status of a UN Specialized Agency in all

these recent cases. This was not the case in some earlier agreements, such as with the Government of Kenya (1976), in which the status of ILCA is not so favourable.

2.2. ILCA's Mandate

ILCA's Memorandum of Agreement, signed in 1974 with the Government of Ethiopia, states that the Centre's purpose is:

... to assist national efforts which aim to effect a change in the production and marketing systems in tropical Africa so as to increase the sustained yield and output of livestock products and improve the quality of life of the people in this region.

More specifically, ILCA's terms of reference, also set out at that time, and reiterated with minor changes in wording in the 1991 Revised Agreement with the Ethiopian Government, are to:

- retrieve, assemble and make available in both English and French relevant information on animal production in tropical Africa;
- establish multidisciplinary research teams to study existing animal production systems, develop new or modified methods of production and define priorities for other research;
- support, supplement and cooperate with national and regional research stations or programmes in developing a fully coordinated research programme related to the urgent needs of livestock development;
- develop the capacity to undertake research programmes in specific aspects of livestock production appropriate to an international centre;
- organise or assist in organising seminars, technical conferences and training courses for national staff engaged in livestock research, extension, planning and production, in order particularly to increase regional competence in the interdisciplinary systems approach to livestock research and development;
- make available statistical support, information or advice to national, regional or international authorities in the various fields relating to animal production in which the Centre is actively engaged; and
- engage in such other activities as may be found necessary to further the Centre's objectives.

The 1981 and 1986 External Reviews agreed that there was no need to revise the current mandate but stressed that ILCA's operational interpretation of its mandate should be more focused. TAC concurred with these conclusions. Subsequently the ILCA strategy paper defined the following operational goals:

- to strengthen the ability of NARS to conduct technical and policy research in livestock-related fields and thus to develop their own technical solutions to production problems and to promote livestock and rural development;
- to develop, through ILCA's own research and that of other organizations, technical packages for increasing livestock production and the contribution of livestock to sustainable agricultural production and income; and
- to contribute to scientific knowledge in a way conducive to solutions to livestock production problems; such knowledge may relate to the understanding of production constraints and opportunities, or to research methods and techniques.

The strategy paper went on to make the following choices of species, target groups, zones and commodity functions for ILCA's operational mandate.

Species	Cattle, Sheep, Goats Camels, Equines, Pigs, Poultry, Unconventional Species, Fish
Target Groups	Smallholders, Agropastoralists <i>Pastoralists</i> Ranchers
Zones	Semi-arid, Subhumid, Humid, Highland Arid
Products	Meat, Milk, Traction, Manure Transport, Hides, Skins, Fibres, Eggs

Bold = High priority; *Italic* = Medium priority; Light = Low/no priority.

The Panel has carefully considered the formal and operational mandate of ILCA in the course of this Review. Further discussion of the issue is presented in Section 3.2.1.

2.3. The Board of Trustees

Details of governance and powers of the Board are spelled out in Articles 8 and 9 of the Revised Agreement between the Government of the People's Democratic Republic of Ethiopia and ILCA (signed on 14 March 1991). Procedures for the Board and its Committees are detailed in the Rules of Procedure of the ILCA Board, included in the Handbook for the ILCA Board of Trustees, most recently issued in draft form in September 1991.

The following sections of the Report outlines the membership and structure of the Board. Section 4.2.1. on Leadership by the Board provides an assessment of the Board's effectiveness, with suggestions and recommendations.

2.3.1. Membership

The original Memorandum of Agreement set Board membership at 12, with the possibility of adjusting the number but not exceeding 17. As presently constituted in the Revised Agreement, ILCA has a 14-member Board of Trustees comprised of: two members designated by the Government of Ethiopia, four members designated by the CGIAR, seven members-at-large, at least three of whom are required to be African nationals, and the Director General *ex-officio* (see Table 2.1. which is also discussed in Section 4.2.1.). Since the previous EMR, CGIAR nominees have been increased from three to four and the number of members-at-large reduced from eight to seven. The current Board composition is 12 men and two women; six (including the two host country) members are African nationals. The Secretary to the Board is the Director of Donor and Board Secretariat, a position created in 1987 as a response to a 1986 EMR recommendation that secretarial services provided to the Board be substantially strengthened.

Board members generally serve three year terms and are eligible for, and generally serve, a second term. The Chairperson and Vice-Chairperson of the Board are nominated by the Nominating Committee and elected by majority vote of the Board for one year only. Re-election is possible. The Board of Trustees of ILRAD is invited to send two of its members to attend as observers at open meetings of the ILCA Board; the ILRAD Director General has usually been an observer, accompanied by the ILRAD Board Chairperson or Vice-Chairperson.

The Board meets once a year, in April or May, in an open session attended by observers and then in closed session. Much of the Board's work is conducted through its Executive, Programme, Audit and Nominating Committees.

2.3.2. Committee Structure

Under existing policy, the Chairpersons of the Programme and Audit Committees are selected by the Board as a whole. The draft revised Rules of Procedure state that all Committee Chairpersons will be appointed by the Board on the nomination of the Chairperson of the Board, who also is an ex-officio member of each of these committees.

The Executive Committee advises the Board in matters relating to budget and finance, identifies issues requiring the attention of the Board and its committees, assists in preparing Board meeting agendas, makes recommendations to the Board with regard to staff salaries and related conditions of work, and annually assesses the Director General's performance. Usually meeting three times a year, the Committee also acts on behalf of the Board when it is not possible for the full Board to meet.

Members of the Committee are the Chairperson of the Board, the Vice-Chairperson, the Director General and the Chairpersons of the Programme, Audit and Nominating Committees. If the host country is not represented on the Committee, one of its nominees on the Board is appointed by the Chairperson of the Board, who also serves as the Chairperson of the Executive Committee.

The Programme Committee is responsible for advising the Board on all matters regarding the conception, elaboration, implementation and evaluation of the Centre's programme of research, training and information. The Committee currently consists of seven members of the Board, in addition to the Chairperson of the Board and the Director General who are ex-officio members. The members, including the Chairperson, are appointed by the Board on the nomination of the Chairperson of the Board. The Deputy Director General (Research) serves as the Secretary of the Committee. The Committee meets twice each year, during the Annual Programme Review and the Annual Programme Planning meetings. Outside advisers and observers may be invited to attend meetings, although the Committee minutes do not indicate that this has actually happened in recent years.

The Audit Committee is comprised of three Board members (not including the Chairperson of the Board or the Director General). The Director General is explicitly not a member of the Audit Committee. The Centre's chief financial officer serves as the Secretary to the Committee. The Audit Committee is responsible for advising the Board on all matters relating to the integrity of the Centre's financial and administrative performance relative to approved policy. The Audit Committee maintains a direct line of communication between the Board and the external and internal auditors. The Committee meets once a year.

As a response to a suggestion made by the 1986 EMR, the Audit Committee no longer has responsibility for reviewing the Centre's budget or for reporting to the Board

on the budget and financial management activities of the Centre. These responsibilities currently reside with the Executive Committee.

The Nominating Committee is charged with ensuring the continued competency, strength and leadership of the Board. The Nominating Committee selects a slate of candidates from which the Chairperson and Vice-Chairperson are annually elected by the full Board. The Committee consists of three non ex-officio members of the Board, who are appointed annually by the Board on the nomination of the Chairperson of the Board. The Secretary of the Board serves as Secretary of this Committee, which meets once a year at the time of the annual Board meeting. Candidates for Board nomination are selectively invited to the Centre to attend Board and committee meetings as observers. This allows the Board to assess candidates prior to their election and provides candidates with a preliminary view of the Centre's work and Board responsibilities.

Table 2.1. ILCA Board of Trustees and their Terms of Office

Name	Discipline	Nationality	Gender	86	87	88	89	90	91
African Members									
Dr Aklilu Afework	Economics	Ethiopia	M	X	X	X			
Dr Z. Coulbaly	Veterinary Medicine	Mali	M	X					
Dr K. David-West	Veterinary Medicine	Nigeria	M	X	X	X			
Dr P. Chigaru	Animal Nutrition	Zimbabwe	M	X	X				
Dr Gizaw Negussie	Agricultural Economics	Ethiopia	M	X	X	X			
Dr P. Thiongane	Veterinary Medicine	Senegal	M	X	X	X	X	X	X
Dr M. Kyomo	Animal Breeding	Tanzania	M		X	X	X	X	X
Dr A. Adegbola	Animal Science	Nigeria	M				X	X	X
Dr Assefa W. Giorgis	Veterinary Medicine	Ethiopia	M				X		
Ato Getachew T/Medhin	Agricultural Economics	Ethiopia	M				X	X	
Mrs. L. Randria	Animal Science	Madagascar	F					X	X
Dr Seme Debela	Plant Breeding	Ethiopia	M						X
Ato Getachew Worku	Animal Production	Ethiopia	M						X
Dr E. Annan-Yao	Sociology	Cote D'Ivoire	F						X
Other Countries									
Dr K. Meyn	Animal Science	Germany	M	X					
Dr P. Brumby	Animal Science	New Zealand	M	X°					
Dr B. Nestel	Agricultural Economics	England	M	X*	X*				
Dr G. Sorbo	Social Anthropology	Norway	M	X	X	X			
Dr J. Tyc	Economics	Switzerland	M	X	X	X			
Dr G. Rognoni	Veterinary Medicine	Italy	M	X	X	X			
Dr H. Stepler	Agronomy	Canada	M	X	X	X			
Dr R. Cummings	Soil Science	USA	M		X	X*	X*	X*	X*
Dr J. Walsh	Animal Science	Ireland	M		X°	X°	X°	X°	X°
Prof D. Bommer	Agronomy	Germany	M			X	X	X	X
Dr N. Chabeuf	Veterinary Medicine	France	M			X	X	X	X
Dr J. Dillon	Agricultural Economics	Australia	M			X	X	X	X
Dr P. Egger	Agronomy	Switzerland	M				X	X	X
Dr S. Watanabe	Veterinary Medicine	Japan	M					X	X
Dr E. Poutainen	Animal Husbandry	Finland	M						X

* Chairman of the Board.

° Director General/Ex-officio Board Member.

CHAPTER 3 - STRATEGIES AND PRIORITIES

3.1. Overview

The CGIAR, assisted by TAC, has recently reviewed the size and scope of its programmes. Subsequently, it also re-examined its priorities and strategies throughout the System. The priority study estimated that the modified value of livestock production of 28%, in relation to all commodities for all developing regions, compared closely to the 1990 CGIAR core resource allocation of 27%. While recognizing the close global congruency on livestock research, TAC indicated that major questions remained about activity, regional and species emphases. For example, while the SSA share of the total value of livestock production in developing countries amounts to about 8%, 68% of the CGIAR resources allocated to livestock research in the 1986-88 period were spent in SSA. However, as TAC has recognized, such direct comparisons have limitations when other criteria relating to efficiency, equity and sustainability were considered in deriving modified values that were used in assessing the optimal allocation of research resources. As a result, TAC intends to look again at issues relating to livestock research after completion of the current ILCA and ILRAD reviews and completion of the Winrock Report. While cognizant of this plan, detailed consideration of such matters was largely outside the terms of reference of the ILCA Panel. However, given the current difficulties in SSA, this Panel concurs with the assessments of the previous reviews, that the mission or purpose of ILCA, as delineated in Section 2.2., continues to remain appropriate. The extent to which this may be modified by any move to ecoregional centres is discussed throughout the Panel Report. For example, if such a move does occur, the Panel suggests serious consideration should be given to ILCA remaining an African regional livestock centre and becoming an ecoregional centre on crop - livestock systems for the highland areas of SSA.

This chapter reviews and assesses ILCA's strategic and operational planning processes and then considers, in very broad terms, some of the major issues which shape the Centre's plans. Many of the topics raised are dealt with in detail in later sections of the Report and are cross-referenced where appropriate.

3.2. The Planning Process

Planning at ILCA is done in three time frames, namely strategic long-term planning, medium-term planning, and annual planning of research and training and information activities.

3.2.1. Strategic Planning

After the Second EPR, ILCA drew up a strategic plan which defined the operational goals. These have also been delineated in Section 2.2., along with a description of ILCA's operational mandate. The operational mandate indicates decisions made with respect to the choices of species, target groups, zones and commodity

functions which provide the focal point of ILCA's activities. The strategic plan published in 1987 provides a detailed rationale for the choices made. The plan was developed through a consultative process involving ILCA Management and staff, the Board of Trustees, and representatives from the NARS. In general, the Panel concurs with the decisions made. These decisions were based on ILCA's research experience since 1974, on expectations of funding, on the experiences of other research institutes including NARS, and on the recommendations of the 1986 EPR and EMR.

The one area which the Panel is uneasy about is the decision to limit work in the arid zone. While recognizing that the Second EPR supported this decision, TAC, in its commentary on that Report, indicated that livestock policy issues in the arid zone should continue to receive some consideration. Also, the recent TAC and CGIAR recognition that ecological sustainability factors should receive greater attention does suggest that the zone should receive renewed attention, especially since livestock provide an important source of livelihood, and in many areas, are a major determinant in the sustainability of the system. Certainly, at the minimum, the Panel believes that livestock policy issues relating to pastoralism and resource conservation in the arid and semi-arid zones, should continue to receive some consideration.

In order to try to fulfill ILCA's mission the strategic plan lays out guidelines for training, information and research -- all considered vital activities. The relative degrees of emphasis in terms of resource allocation was, for example, in the ratio of 16:84 (training/information:research) in 1988. For the research programme, the objectives have been stated in terms of six thrusts. Three of the thrusts focus on commodities, namely meat, milk and traction. The other three are strategic thrusts, which are designed to generate technologies and knowledge which will eventually improve the productivity of the livestock commodities. The specific thrusts are: Cattle Milk and Meat; Small Ruminant Meat and Milk; Animal Traction; Animal Feed Resources; Trypanotolerance; and, Livestock Policy and Resource Use.

The strategic plan which started in 1988, was approved by ILCA's Board of Trustees and TAC. It is designed to last for 10 years, although an option exists to review and update it after five years.

Before the introduction of the thrusts ILCA had multidisciplinary teams working in a number of sites in separate programmes. The Panel believes that the move to a thrust approach has been helpful in providing a degree of focus to the research effort. Nevertheless, in practice, the main purpose has been to provide a framework for a project budgeting approval system. The Panel does, however, as will be explained later in the Report (Section 4.4.2.), have some concern about the role of the thrusts in the research management system.

3.2.2. Medium-Term Planning

The MTP is a detailed work plan and budget for training, information and research, covering a five-year period, 1988-93. Major research themes are identified within thrusts, complete with definition of objectives and anticipated outputs. The plan also indicates the anticipated resource allocations by thrust and theme (including

coordination of any associated network), and identifies expected resource requirements for core and complementary operations. According to the documentation given to the Panel, considerable effort was devoted to delineating the themes within the thrusts. Each of the six thrust planning meetings consisted of scientists of different disciplines from ILCA, from national and regional institutions in Africa and from institutions outside Africa. The "goal-oriented project planning" method and the "project planning matrix" approach were used in developing the themes within thrusts. The Panel understands a similar exercise was undertaken for training and information in late 1989.

The Panel is impressed with the efforts of ILCA with respect to the approach used in ascertaining the appropriate themes within each of the thrusts. The Panel also recognizes the problems of fulfilling the stated expected outputs during a period when funds for research are not increasing at the rate anticipated. The Panel's concern relates to the way in which decisions are made. It appears that such decisions are often made by default rather than being based on explicit criteria. The Panel suggests that compromises are rationalized and well documented, and are communicated to the Programme Committee of the Board of Trustees for approval. It is now obvious that, in drawing up the MTP, in ILCA as in other Centres, there were unrealistic expectations as to the resources that would be available. The CGIAR is now attempting to develop a System-wide strategy that will prevent such a situation occurring again in the future.

3.2.3. Annual Planning

The annual planning exercise is undertaken at the project level. During the exercise new initiatives are identified while ongoing projects are evaluated and, if necessary, revised. While new projects are evaluated for their feasibility and potential impact, progress with ongoing projects is evaluated against their objectives. Steps in the annual planning process have been formalized (see Section 4.4.1.). The end of the process, arising from negotiation among project leaders, cost centres, individual Thrust Coordinators, the Thrust Council and the DDG(R), results in the preparation of the annual work programme and budget. In order to stimulate greater focus, interdisciplinarity, cohesiveness and continuity in the research programme project leaders are being increasingly encouraged to include a number of activities within each project proposal. In discussions, the DDG(R) indicated that, over time, the ILCA research programme could possibly be consolidated into fewer big projects including larger numbers of activities. This is consistent with the Panel's view.

All scientists are encouraged to develop project proposals, which annually are articulated in the form of protocols. Specific guidelines as to what should be included in both have been clearly delineated. Experiment protocols are reviewed by a biometrician, while consultation with disciplinary specialists is also encouraged. The Panel is concerned that disciplinary peer review appears to be somewhat ad hoc and suggests that this process should be more formalized to improve the chances of improved scientific quality. Furthermore, the Centre should try and streamline the process of project formulation and approval, in order to avoid overlapping projects being approved by different thrusts.

Research evaluation is based on on-site evaluation (i.e. by the Team Leaders, Director General, Deputy Director General (Research), Thrust Coordinators and disciplinary specialists), annual project progress reports, the Annual Programme Review, seminars and publications (especially in refereed journals).

ILCA's research programme is regularly exposed to two groups of people:

- 1) The Programme Committee of ILCA's Board of Trustees. Members of the Committee attend the Annual Programme Review and the Annual Programme Planning Meeting and are encouraged to visit the zonal sites. The impression of the Panel is that the Committee has been more reactive than interactive. The Panel suggests that the interactive mode could be encouraged by submitting proposals to the Committee for inputs well before ILCA staff have "finalized" their thinking, and by soliciting the Committee's ideas about different options rather than providing a single "blueprint" for comment. The Panel believes the Committee should, in the development of the next MTP, be sensitive to any new TAC initiatives concerning the proposed move to the ecoregional approach (see Section 1.4.2.). Furthermore, the ILCA Programme Committee should interact closely with the Programme Committee of the ILRAD Board in the next medium-term planning exercise (see Section 11.4.).
- 2) The Biennial Meeting attended by NARS representatives. ILCA is to be commended for arranging meetings every second year to which representatives from NARS are invited. It provides an important forum for ILCA to explain its activities. At the same time it is difficult to harness the talents of such a group in providing a constructive input into the research process. This is of some concern to the ILCA Management. We support the proposal of the Deputy Director General (Research) to avoid information overload by providing specifically targeted information to the participants prior to their arrival and asking them to comment on it at the meeting. The Panel believes expectations from such meetings should not be too high. Local technical advisory committees (consisting of representatives of institutions in the country of work) in the zonal sites can probably provide a more measured and informed input into the research process.

3.3. Results of the Planning Process

There are a number of ways in which the balance of activities can be viewed. All of these have implications with respect to resource allocation, although it is not always possible explicitly to delineate allocations in specific terms. In the following subsections the Panel has examined a number of issues that pertain to the mandate of ILCA, and the allocation of research resources, with reference to type of research, location, and impact.

3.3.1. Balance Between Main Programme Responsibilities

Table 3.1. indicates that the downward trend in the overhead or administrative (i.e. Board, management, general operations and maintenance) expenses, which the Second EPR commended, has not been maintained during the last five years. The proportion of funds devoted to administration has been consistently above those

projected in the MTP. Funds devoted to training and information have decreased most relative to the proportion in the plan although this may partly reflect changes in the accounting procedure. Apart from last year (1991) when ILCA faced severe budgetary constraints, the proportions spent on research, training and information have remained fairly constant. The Panel suggests that ILCA be vigilant in trying to minimize administrative expenses, especially during an era when budgetary constraints are likely to continue.

Table 3.1. ILCA's Expenditures by Activities: Planned and Actual ^{1/}
(millions of US \$ and percentages)

Total Operating Expenditures:	1988	1989	1990	Est. 1991
MTP	17.9	20.1	22.3	24,6
Actual	18.2	19.8	21.0	19,0
Percent Breakdown by Activity: ^{2/}				
Research	64(64)	65(65)	66(65)	66(64)
Training and Information	17(12)	17(12)	17(13)	17(13)
Overhead	19(24)	18(23)	17(22)	17(24)

^{1/} Because of problems of reconciling planned (i.e. MTP) and actual expenditures, the Financial Controller supplied all the data based on similar accounting procedures.

^{2/} The figures in columns represent the planned expenditure (i.e. MTP) in percent, and the second figure in the parentheses is the actual expenditure in percent.

Sources: Financial Controllers' Position Paper June 1991, page 4 and relevant Table IX, and information provided by the Financial Controller.

3.3.2. Type of Research

The Second EPR recommended that the systems approach, which has guided the research activities of ILCA since its inception in 1974, should continue to be emphasized. The Panel endorses this recommendation because the focus of the Centre is on smallholders and agropastoralists. At the same time, ILCA should engage in applied and in strategic research, where its perception of the problems indicates this is appropriate. Unlike the systems approach, which implies location specificity, the other types of research may have broader regional and, sometimes, even global relevance. However, given the comparative advantage of ILCA in assembling interdisciplinary teams, the farming systems approach should continue to receive attention, preferably in collaboration with NARS, so that the methodology of this approach can be extended in Africa. The Panel does not feel it is in a position to dictate on the appropriate balance (i.e. in terms of effort and resource allocation) between the various types of research since a high degree of complementarity exists between them. Application of the farming systems approach should be used in guiding the priorities of applied and strategic research, and also in providing appropriate criteria for evaluating the results of the research. The Panel is concerned that, because ILCA is committed to so many types of

research, there is a danger that none may be done properly. Aspects of scientific quality and the need for ILCA to continue developing the methodology for livestock systems research are considered elsewhere in this Report. ILCA scientists need to appreciate that research objectives must be clearly differentiated and closely related to the experimental procedures. Mixed objectives can lead to poor-quality experiments and poor science. For example, the elucidation of technical cause - effect relationships and meaningful farmer involvement can rarely be satisfactorily combined in one trial. The type of research emphasized is obviously influenced by location, aspects of which are considered in the following two subsections.

3.3.3. Headquarters Versus Zonal Work

The Second EPR recommended that there should be no further strengthening of research at HQ at the expense of zonal programmes. The figures in Table 3.2. in fact indicate that the balance in terms of research resource allocation has, particularly in the last two years, continued to swing in favour of the zonal sites. Generally, the Panel supports this distribution (i.e. about two-thirds of the research resources going to the zones). However, as funding availability varies, it may be necessary to depart from such a division in order to start new initiatives or maintain essential core groups. One of the concerns is that there is a danger of staff becoming too thinly spread, so that sites lack the critical mass of staff required to assemble multidisciplinary teams or to make progress on applied or strategic research. The Panel believes that with the implementation of the TAC plan to move towards an ecoregional strategy, assembling appropriate research groups through collaboration with other IARCs will be somewhat easier.

3.3.4. Agro-Ecological Regions: Need and Payoff

In Table 3.3, the Panel has taken a fresh look at the agro-ecological regions of SSA and has qualitatively evaluated both the potential need and potential payoff from livestock research in each of the regions. It is apparent when the agro-ecological regions are subdivided according to their location in Africa, there is not a particularly good congruence between the zonal sites where ILCA activities are located, and the populations (i.e. human and livestock) and the related issues of need and pay-off. ILCA is not represented in the semi-arid and arid areas of the eastern Sahel (i.e. Sudan and Somalia) where livestock populations are very large and the needs are great, or in the subhumid or semi-arid zones of southern Africa. Later in the Report (see Section 6.5.) the Panel considers the status of the Bamako programme in the light of livestock populations and needs elsewhere, particularly with reference to the subhumid and semi-arid zones of southern Africa (see Chapter 8). The lack of a stable research environment precludes the Panel from suggesting a zonal site in the Eastern Sahel. Because Mombasa is not representative of a large area, the Panel also considers whether activities should be continued there once the current work programme is completed (see Section 6.3.).

3.3.5. The Influence of Impact on Resource Allocation

In an era of budgetary constraints, there is increasing pressure on resource allocation between priorities in centres such as ILCA. These priorities are increasingly assessed in terms of impact (i.e. what were the returns from the commitment of the resources). The Panel commends ILCA for requiring scientists to make *ex ante* assessments of the potential economic, sociological and ecological impact of their proposed research, when drawing up their research protocols.

One of the problems of a centre like ILCA is that there are a number of outputs, which are often not appreciated by outsiders. Impacts from production research, as shown in adoption, are usually well recognized but results from other activities often contribute to something else that eventually leads to tangible results (e.g. policy and organizational research). ILCA should document these "intermediate" (indirect) impacts as well as the more direct impact resulting from production research. The Panel suggests that ILCA pay particular attention to the measurement of impact of its work, and in the case of adoption studies, undertake them in such a way that problems relating to adoption can be identified and, if necessary, fed back to research for resolution.

Another aspect of the impact issue is the expected time frame as to when results can be expected. Unfortunately, where needs are greatest the payoff from research often requires substantial resources and a long-term investment. Conversely, low need is sometimes associated with high payoff requiring relatively small amounts of resources and a short time frame to achieve a payoff. The Panel suggests that in allocating limited research resources, some are devoted to research in ways that should yield quick results, that will appeal to the stakeholders of ILCA.

All research, no matter what the time frame, should include an assessment of the potential or actual impact on the natural resource base (i.e. sustainability concerns). Finally the Panel suggests that, in the light of TAC's proposal in the ecoregional paper, ILCA should seriously consider whether it would be appropriate for the Centre to place greater emphasis on strategic research concerning natural resource management. The merits of this should be considered when designing the new MTP.

3.3.6. Other Factors Influencing Resource Allocation

The forgoing discussion is not an exhaustive treatment of all the factors that will influence the research resource allocation of the Centre. For example, two others that the Panel believes are significant, are important to the CGIAR, and often are not adequately addressed in research design and priority setting, are the following:

- 1) The focus on self-reliance rather than self-sufficiency. This means that comparative advantage assessment should play an important role in determining the nature of farm production systems and hence, should be influential in determining research priorities. For example, later in the Report, the Panel considers the issue of peri-urban milk production, an increasingly important source of cash income as urban areas develop. It is likely that, because of climatic factors, such a system is likely to be more suitable in some areas than in others.

Table 3.2. Research Allocation Between Headquarters and Sites (Expenditures)

	1984 ^{1/}	1985 ^{1/}	1986	1987	1988	1989	1990	1991 ^{2/}
Total Research Resources (millions of US \$)	8.5	10.1	11.2	10.6	11.6	12.5	13.5	11.8
Percent Breakdown by Location:								
Headquarters	33	37	39	42	43	42	35	34
Zones	67	63	61	58	57	58	65	66

^{1/} Figures for 1984 and 1985 are included since these are not directly comparable with those in the Second EPR Report, because of differences in the accounting procedure.

^{2/} Estimated Actual.

Sources: Financial Controller's Position Paper 1991 and information provided by Financial Controller.

2) Increasing concern with gender issues. There are many examples in SSA of technologies that have benefitted farming households "as a whole", but in doing so have had negative effects on women. Although the fundamental issue is a social one, those responsible for developing improved technologies need to consider the potential impact of their results on intra-household relationships. In fact, one element of the ex ante evaluation of social impact, mentioned above, does include such a consideration. Strategies designed to benefit women, as a minimum should reduce drudgery, but better still, should improve their economic position. Thus research resources devoted to benefitting women may not necessarily yield maximum returns in improving incomes of the household as a whole, but can be justified on the basis of improving the welfare of women within households. An example important to ILCA's planning is the fact that small ruminants are often owned by women. Providing women make decisions on how they are managed, control the resources necessary to manage them, and reap the benefits of their effort, technologies designed to improve small-ruminant productivity are likely to benefit women, at least, in the short run.

As ILCA revises its strategic plan, the Centre's planning process will be complicated by considering not only the issues discussed above, but also others, such as intellectual property rights, genetic resources and biotechnology.

**Table 3.3. Indicators of Livestock Research Priority for ILCA in sub-Saharan Africa
Aggregated by Agroecological Regions^{1/}**

Agro-ecological Region	Main Climate	Estimated Population Growth from 1988 to 2025 (millions) ^{2/}	Livestock Units (millions) ^{3/}	Capacity to Support Population ^{4/}	Need ^{5/}	Payoff ^{6/}	Locations of ILCA Work ^{7/}
Western Sahel	Semi-arid to arid	74	26.8	Low	High	Low	Niamey Bamako
West Africa	Subhumid	269	21.7	Medium	High	Medium	Ibadan, (Bamako) ^{8/} Kaduna
Central	Humid	87	9.8	High	Low	High	(Ibadan) ^{9/}
Eastern Sahel	Semi-arid	44	36.3	Low	High	Medium	
Eastern Highlands	Cool subhumid to semi-arid	259	70.1	Low	High	High	Debre Zeit, Debre Berhan
Southern Subhumid	Subhumid	91	19.8	Medium	Medium	High	
Southern Semi-arid	Semi-arid	14	11.8	Low	Low	Low	

^{1/} See Appendix V for details by country. In the report, zones are divided completely in terms of climatic data. Regions are approximations of the agro-ecological zones and consist of aggregations of countries. This permits incorporation of socio-economic data.

^{2/} World Development Report 1990, World Bank, Washington D.C.

^{3/} To calculate total livestock units, it was assumed sheep and goats were equivalent to one-seventh of one cow. From Production Yearbook 1988 (Rome: FAO 1989).

^{4/} FAO/UNFPA. Land Resources for Populations of the Future. Rome 1980. The lower the capacity, the greater is the problem of maintaining ecological sustainability. In the column, the capacity to support populations is evaluated at the intermediate input level.

^{5/} Qualitative assessment of the need for improved livestock productivity, as far as the population is concerned.

^{6/} Qualitative assessment of the potential payoff in terms of livestock productivity, as a result of livestock research.

^{7/} Mombasa is a representative of a small area and does not easily fit into any of the regions in the table.

^{8/} Bamako is not in this region with an LGP of 137 days.

^{9/} Ibadan is not in this region but is close and has a near-humid LGP of 246 days.

CHAPTER 4 - LEADERSHIP, RESEARCH ORGANIZATION AND MANAGEMENT

4.1. Organizational Culture

An organization's culture is important, because it furnishes a context in which the organization acts and makes decisions. It includes the collectively used norms, beliefs, values, assumptions, and behaviour of an organization's members. It determines the organization's view of the rightness of its directions.

Organizational cultures come from several sources. The dominant disciplines of an organization lead in guiding its manner of thinking and behaving: examples are animal science at ILCA and veterinary medicine at ILRAD. External factors, such as donors or host cultures, are strong forces in shaping organizational culture, and the current leaders of the organization contribute to it.

The Panel did not make a systematic assessment of ILCA's culture but did make a careful review of documents, reports, and minutes provided to us, and conducted extensive interviews with staff at all levels and zonal sites. The Panel's observations are based on these data. Our impression is that ILCA does not have a strong culture about which there is a consensus. The organization has gone through many changes and is spread across many locations. The changes in management approaches since ILCA's founding have contributed to an unsettled view of the organization. The turmoil in ILCA's external environment has hindered the development of a stable culture. Because the Centre is extending itself into many relationships with NARS, networks, and regional centres, it is difficult for ILCA to use uniform sets of values, behaviour, and assumptions that apply across all situations. On openness, ILCA has to be open in contending with its many external influences. It is market-driven, in that it is pragmatic towards pressures from its clients or donors. The organization attempts to identify with its clients' interests. It is focussed in the middle between upstream and downstream research. There is a great power distance between people at the top of the organization and those below. The organization has to account for a great deal of uncertainty versus having high certainty. The work of the employees is quite central to their life. The level of ambition among the employees is only moderate. Employees are devoted to the mission of the Centre.

These ideas are offered to provide a context in which to consider the rest of ILCA's operations, its management, organizational decisions, relationships between staff, relationships between ILCA and its clients, along with the other topics discussed in this Report. The cultural aspects of organizational life are subtle and hard to perceive, but they can be powerful drivers of ILCA's actions.

4.2. Leadership

4.2.1. Leadership by the Board

Our observations and assessment concerning the Board are based on a review of ILCA's Revised Memorandum of Agreement and the ILCA Board Handbook, attendance at one full Board meeting and at the Audit, Programme and Executive Committee meetings of the Board, study of Board minutes and documentation, discussions with the Director General and staff, and individual interviews with present Trustees and one former Trustee. In addition, Board members were surveyed through a detailed questionnaire developed by the CGIAR Secretariat. The 1986 EMR concluded that the overall performance of the ILCA Board was less than satisfactory. Areas identified as requiring special attention were: strategic planning, goal setting and priority determination; the timing and effectiveness of the Board's review and monitoring processes; the Board's composition and organization; and the selection of the Director General and subsequent interactions between the Board and Director General. As noted in Appendix I., the Panel assesses that in the past five years there has been great improvement in each of these areas. The Chairman has played a critical role in developing a cohesive Board, guiding a new Director General, and achieving increased stakeholder confidence in ILCA. Yet the Panel is concerned that the experience and knowledge of the Board is not more fully exploited in carrying out the Board's work. The Board tends to be reactive rather than interactive in its practices.

Since the last review ILCA has developed new strategic and medium-term plans. These plans were developed in a comparatively short time frame and the Board feels satisfied it was sufficiently involved in that process. Since then the Board has not played a significant role as the Centre has made choices on priorities. When asked about their role in the annual budget approval process, which explicitly sets priorities, most Board members indicated that they could not influence the budget "because the Centre adheres to the five-year plan". Yet the Centre Management does make choices. The Panel concludes that the Board should play a more active role in assisting the Centre Management to make these choices, especially if financial resources become more limited.

4.2.1.1. Role in Policy Making and Oversight

A clear effort has been made by the Board and Management to delineate policy decisions from operational matters and to involve the Board primarily in the former. This view was expressed repeatedly by Board members in interviews with the Panel and is illustrated by the kinds of agenda items that are placed before the Board and the limited extent to which the Board probes in its oversight capacity. The Board does not appear to have the time at Board and Committee meetings to discuss interactively the information being presented. As a result, the Board risks providing too little oversight, especially in financial resource allocation and human resource management, a pitfall as dangerous to a Board as providing too much oversight. Although there has been a high turnover in international staff, with a consequent effect on research continuity, the Board has not addressed human resource management issues in any depth.

The Panel agrees that the present size of the Board (14 members) seems reasonable to achieve adequate representation and responsibly provide oversight and set *direction*. Much of the Board's policy making and oversight responsibilities are conducted through its Committees, which are generally effective.

The Executive Committee meets more frequently than the Board (which usually meets only once a year) and assumes the role of a mini-Board, dealing with matters such as budget and finance even when all Board members are present. As a consequence, those Board members who do not serve on the Executive Committee are considerably less informed and are not able to share fully in the work of the Board. It is not in the Board's interests for the Executive Committee to act routinely as a sieve, pre-digesting items for the Board's approval, a role into which some Board members feel the Committee has fallen. All Board members need to be informed about the Centre's Management and activities, rather than appearing to have two classes of Board members. This issue is addressed further in the next section.

The Programme Committee tends to spend its time making itself familiar with the research activities of the Centre. The knowledge and expertise of its members do not appear to be used sufficiently in any decision-making. As discussed in Section 3.2.3., the Panel suggests that the Centre Management present programme options, within the framework of the MTP, for the Programme Committee and staff to discuss and decide on the options. The Committee also serves as an orientation experience for new Board members. This practice, and an additional one of encouraging its members to visit zonal sites and report back to the Board, has been effective in helping new members understand ILCA's constraints and programmes. The cost of this practice has been and should continue to be carefully monitored, and evaluated against the perceived benefits.

The Nominating Committee's work has resulted in a Board that is representative in terms of breadth of experience, geographic and scientific disciplinary composition, and gender, although the Panel believes the Board would benefit from the addition of management expertise to its present programme competence. Such expertise could assist the Board in fulfilling its oversight responsibilities. In three of the past five years, the Nominating Committee has not been able to present a full slate of candidates for elections to the Board; as a result the Board had one vacancy in 1987 and 1989, and two in 1990. While the Panel supports the care the Committee and Board are giving to the nominations process, we urge them to plan ahead to ensure that all Board positions are filled. References on candidates being considered are not generally solicited; such a process would help to ensure members are selected on the basis of the contribution they can make to the Board activity and could avoid potential embarrassment. The formal Board orientation, conducted by the CGIAR Secretariat in 1989, was spoken about favorably by Board members. Many members expressed the view that a regular orientation programme would assist all new Board members and especially those who have a more difficult time entering the system as a result of language and/or cultural differences; the Panel concurs with this view.

The Audit Committee functions well within its responsibilities. However, from the Board survey it is apparent that a significant proportion of the Board does not feel adequately informed of the Audit Committee's work. The Panel therefore suggests that

the Audit Committee spend time educating the Board in this important area, and communicating its findings more fully to the Board. The Panel also suggests the Committee monitor the implementation of recommendations made by the Internal Auditor.

4.2.1.2. Management of Board Business

The effectiveness of Board and Committee meetings is greatly influenced by the planning of the agenda and the preparation of background material to assist the group in arriving at decisions. The Board agenda needs to focus on those items that will benefit from discussion or require Board action. The present structure of the Board meetings includes long periods of time when written reports, distributed to the Board, are read verbatim during the Board meeting. Without intending to, this procedure limits Board interaction, leaving little time for discussion of substantive issues, and even running out of time for some items.

The information flow to the Board, both between and in conjunction with Board meetings, is voluminous. Board members reported difficulty in assimilating the large quantity of material handed out at the Board and Committee meetings. The Director General's intention of keeping the Board well-informed is laudable. At the same time, many Board members made a plea for conciseness. The effectiveness of the Board and Committee members is enhanced when background materials are distributed with sufficient lead time. Board members cannot execute their responsibilities when faced with large quantities of information to assimilate in too short a time period. The situation is further aggravated when many Trustees are experiencing jet-lag and, for some, English is not a first language. The reading day in advance of the Board meeting does not seem to be a satisfactory solution for most members, who would prefer concise, relevant documentation in advance of travelling to meetings. With improved telecommunications and advanced planning, this should be possible.

Some members, whether by nature, cultural background or language barriers, are hesitant to speak. Three Board members consistently dominated the discussions at the Board meeting observed by Panel members. Although these members made cogent contributions, Board and Committee Chairpersons need to find ways, including providing background materials in advance, to encourage the quieter members' viewpoints to be heard as well.

The procedures for making Board decisions are not consistently followed, in part reflecting the style of the individual chairman. There has been little Board voting at ILCA. Since formal motions are rarely made, it is sometimes unclear what decisions have been made and points of view risk being ignored. A balance that respects cultural differences yet allows diverse viewpoints to be heard, and decisions to be clearly understood, is necessary.

As referred to in the discussion on the Executive Committee, the Panel has some concern about the Board's ability to provide oversight when so much of its work is managed either independently or screened by the Executive Committee. Although several Board members must travel long distances, consideration could be given to

holding two meetings of the full Board each year. Most Board members are already attending two meetings a year at ILCA HQ, in May and October, so the additional cost would be minimal. Two Board meetings a year would spread the workload more evenly, involve Board members more consistently in ILCA matters, and provide Board oversight on a more sustainable basis.

Recommendation 4.1.

The ILCA Board of Trustees should whenever possible use the full Board to carry out its business rather than the Executive Committee, and this should include the possibility of convening two Board meetings per year.

4.2.1.3. Board-Management Relations

The Panel's judgement is that the current Board and Management enjoy a very good relationship based on respect for each other's roles and mutual trust. Overall, the Board believes that it is generally able to assert its independence from Management in Board decision-making.

Board member visits to zonal sites provide an opportunity for Board members to get to know staff and discuss their work. While Board/staff interactions need to be handled with judgement, we believe that more time needs to be scheduled for interaction between Board of Trustees and staff members. Several Board members expressed a wish to have more time scheduled to interact with staff.

Recruiting and evaluating the performance of the chief executive officer are generally viewed as the most important responsibilities of any Board. Although the ILCA Board perceives its annual assessment of the Director General as being well-handled, the Panel believes the process could benefit from more formalization. The Executive Committee is charged with annually assessing the Director General's performance. A year ago the Board agreed on criteria to be used in the assessment. In the most recent assessment process Board members were asked in closed session, without advance warning, for their views. Since some Board members are uncomfortable speaking without preparation or rarely speak in the full Board setting, a process which provides the criteria and prepares members in advance for this critical Board discussion, would elicit more probing and constructive information. The Panel applauds the broad Board member input to the process and suggests the process be formalized as described.

4.2.2. Leadership by Senior Management

The leadership of ILCA very much depends on its Director General. The present Director General has a number of accomplishments over the last five years of which he and the Centre can be proud. As well as playing his part in building excellent relationships with the Board, the Director General took the lead in developing the current strategy of the Centre through a consultative process. The Director General has demonstrated great commitment to ILCA and its objectives, ensuring that the Centre conveys an image of simplicity and efficiency. His dedication to ILCA and its work was rewarded when the Centre survived the national crisis in Ethiopia so well.

The next most senior member is the Deputy Director General (Research) who was appointed in 1990. Scientists value his research leadership and support and he is a major and constructive link between ILCA HQ and the zonal sites.

ILCA's most recent organizational chart (Figure 4.1) shows the reporting relationships at ILCA. A feature of the Senior Management of ILCA is that it is dominated by management, as opposed to scientific, responsibilities. At the time of the last review, Directors of three Departments -- Research, Outreach, and Training and Information -- reported to the Director General. Since then the structure has been changed. In the current structure, Research is led by a DDG(R) who reports to the Director General; the Outreach Department was dissolved (responsibilities transferred); there is still a Director of Training and Information; and three new positions were created: Director of Government Relations in Africa, Director of Donor and Board Secretariat, and Director of Administration. As a consequence, seven of the eight most senior staff at ILCA, in terms of job grade, are administrative/management, rather than scientific staff.

The Director General is assisted by a Management Committee, which meets about every second week. The Committee deals with issues related to ILCA's programmes, administration and financial management. It is composed of the Director General, the DDG(R), Department Heads, Director of the Donor and Board Secretariat and the Director of Government Relations in Africa. The Financial Controller is not included (Information on ILCA's Governance, 1991, p. 33), which seems unusual to the Panel. The meeting is open to Team Leaders, Division and Section Heads.

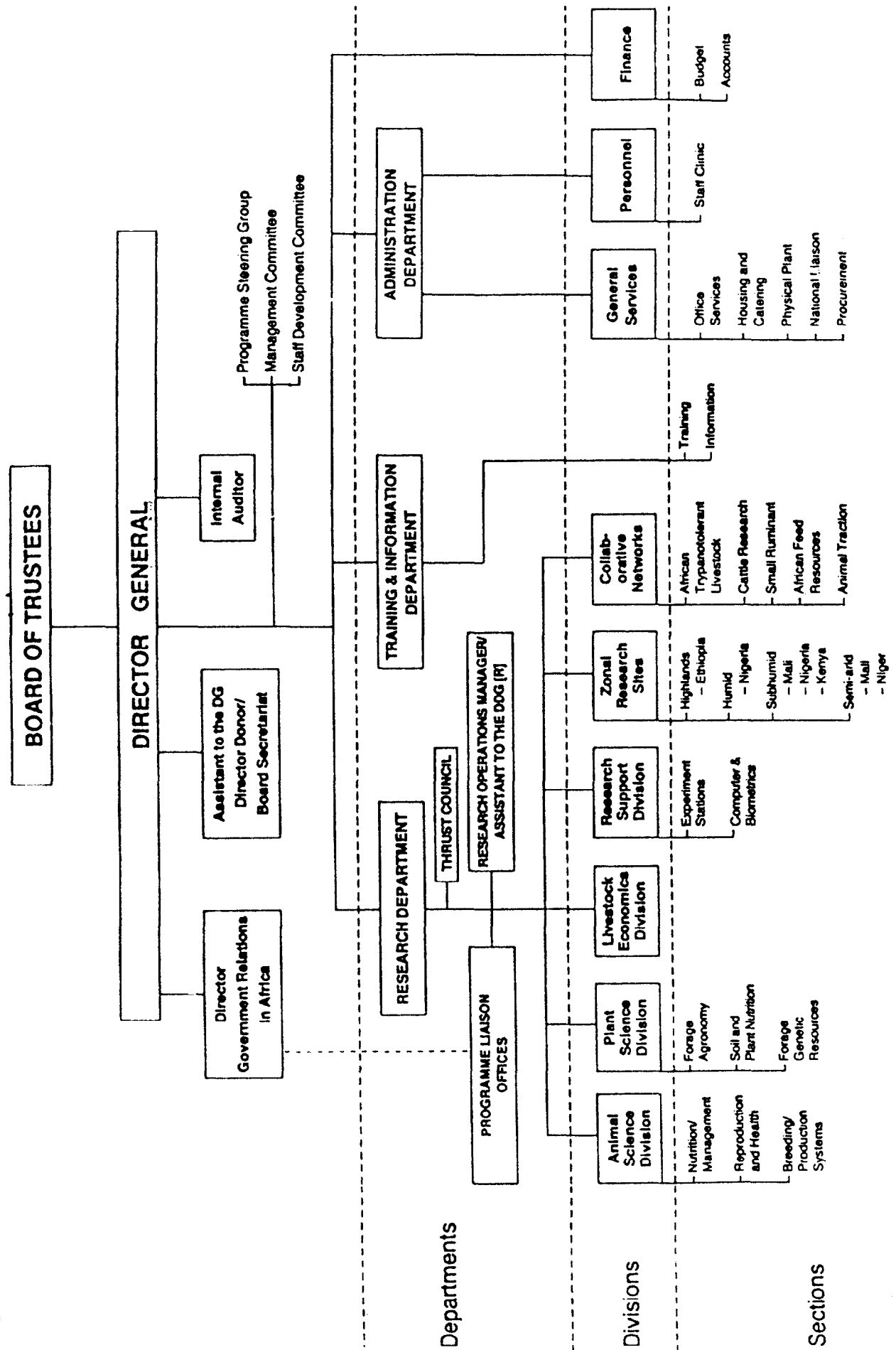
At the time of the last review the Staff Council was an advisory committee to the Director General, but no longer appears on the organizational chart, nor is it mentioned in the document "Information on ILCA's Governance".

In the ILCA organizational structure, the Financial Controller reports directly to the Director General, rather than through the more usual channel of a Director of Finance and Administration. To the extent that the Director General's schedule does not impede responsive decision-making on the part of the Financial Controller, the Panel agrees that there is no reason to change a reporting structure that is working well.

The Panel recognizes the extremely difficult conditions under which ILCA Management and staff in Ethiopia has had to operate, especially during the crisis in 1991. The Panel commends the entire staff for having performed consistently and with commitment, at some personal risk, during this period.

Since the last review there has been exhaustive revision and documentation of procedures and policies. The intent to make management processes open and clearly understood is excellent. There is however a sense, expressed by staff and several Board members with which the Panel concurs, that documentation has taken precedence over communication. Policies and procedures applied too rigidly can have a strangling effect on an organization, and when these are dispersed over many different documents, some inconsistent, there can be a sense of powerlessness in trying to negotiate the system. In large part this is a matter of style, yet effective management must focus upon providing

Figure 4.1 Organisational Structure of ILCA, as of May 1991.



structures and processes that are perceived as supporting people in their work. The Panel recognizes that there is a delicate balance between necessary bureaucracy and too much bureaucracy that can stifle an organization and its people.

Despite significant documentation of procedures, staff seem to be heavily dependent on the Director General for decisions that would more normally reside with other members of Senior Management.

The Panel is concerned about the high turnover rate of international staff from ILCA over the last two years. The recent situation in Ethiopia is undoubtedly a factor in this, but problems intrinsic to ILCA and its management would appear to be a contributing factor. Better communications and human resources management are discussed in Chapter 10. and the Panel considers that a substantial effort is warranted in these areas.

4.3. Research Structure and Staffing

4.3.1. Organizational Structure

ILCA's organizational structure has undergone four major changes in the past decade, in response to external reviews and strategic shifts. The current structure, shown in Figure 4.1., is comprised of three main Departments: Research, Training and Information, and Administration. Discussion here focusses on the Research Department.

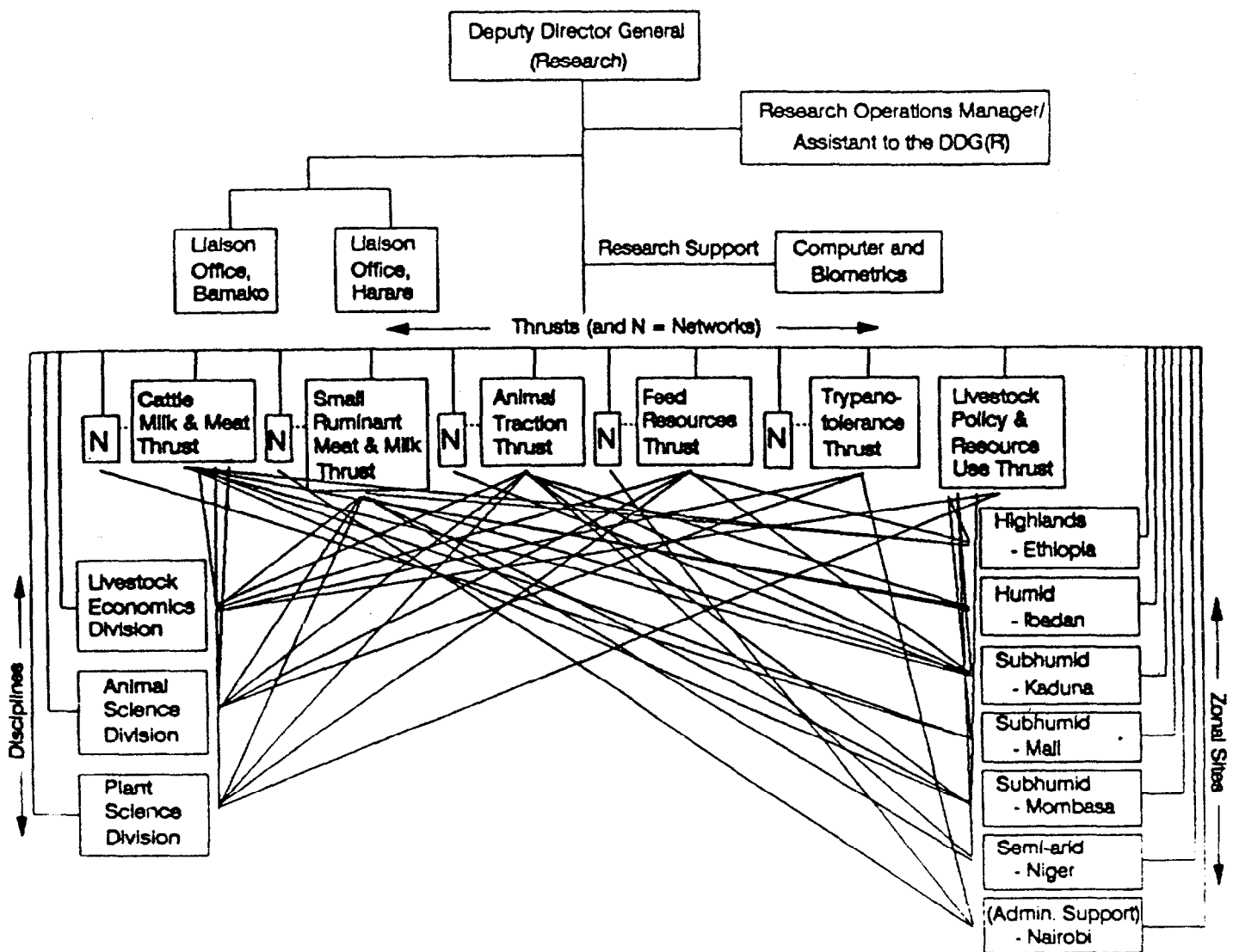
The DDG(R) has overall responsibility for the Research Department. Research at ILCA is organized in a matrix with three dimensions: research thrusts, disciplines and zonal sites. Programmatic direction emanates from the six thrusts, headed by part-time Coordinators, who guide and oversee a collection of projects conducted by multi-disciplinary teams at different sites. Scientists do not "belong" to thrusts, they collaborate in different projects each of which is classified into a thrust.

In addition to researchers, the Research Department consists of Network Coordinators (one associated with each of five thrusts), Programme Liaison Officers (one in Harare, one in Bamako), and Research Support Units (computer and biometrics, soil/plant and nutrition laboratories).

Figure 4.2. illustrates the reporting relationships within the Research Department. On programme matters, scientists report to Thrust Coordinators, who in turn report to the DDG(R); on administrative matters, scientists report to cost centre heads,¹ who report administratively to the DDG(R); on disciplinary matters, scientists are guided by disciplinary Division Heads. Thus, scientists have complex, multi-dimensional reporting relationships, and in all there are almost 30 positions reporting programmatically or administratively to the DDG(R).

¹ *Cost centres are administrative entities within the Research Department -- the bases at which human, physical and financial resources used in research are managed. Cost centres include: divisions, sections, units, experiment stations, zonal sites and liaison offices.*

Figure 4.2. ILCA's Research Department



ILCA's Research Department. The matrix structure consists of:

- Thrusts -** Collections of research projects conducted by multi-disciplinary teams. Scientists report programmatically to Thrust Coordinators, who in turn report programmatically to the DDG(R); Network Coordinators report to him administratively.
- Disciplines - (& Networks)** Scientists belong to three disciplines, and report on disciplinary matters to Disciplinary Division Heads. Disciplinary Heads report administratively to the DDG(R).
- Zonal Sites -** Scientists conduct their research at HQ, at experiment stations in Ethiopia or one of seven Zonal Sites. Scientists at Zonal Sites report administratively to Site Team Leaders, who in turn report administratively to the DDG(R).

4.3.2. Staffing

As of December 31, 1991, ILCA had 60 international staff, of whom 47 were in the Research Department, 17 of these at HQ. Five years earlier there were also 60 international staff and 47 researchers, but 23 of these were at HQ. This trend towards decentralized research may be traced in Table 10.5. ILCA currently has about three scientists on average per zonal site (where ILCA scientists work in collaboration with scientists from NARS and other IARCs).

Due to the funding shortfall there is a serious discrepancy between the number of international staff at ILCA and the MTP-approved levels. The result of this is that the planned expansion of research staff could not take place (see Table 10.5). This leads to the current situation where the administrative/management infrastructure at HQ was staffed at 100% of the Plan, direct research (excluding research support) at HQ was staffed at less than 60%, and zonal sites at about 75% of what was planned, as of December 31, 1991.

Another important staffing trend since the last review has been turnover. Since January 1987 the average annual turnover of international staff has been close to 20% (23% and 28% in 1990 and 1991 respectively). Consequently, only about one-third of the international staff employed by ILCA in January 1987 are still employed there today; there have been a total of 116 different individuals in ILCA's approximately 60 international positions during this period, and median tenure has dropped from four years in 1986 to three years in 1992. Individuals' decisions to leave can undoubtedly be traced to a variety of reasons, including the hardships of ILCA's HQ and zonal site locations. In sum, though, we feel that this situation has disrupted the momentum of the Centre's research in certain areas. Clearly effective recruitment processes are key to bringing the right people to ILCA; once staff arrive, the Centre must look out for their welfare -- it must provide an environment conducive to scientific excellence -- in order to retain its staff.

4.4. Programme Management

4.4.1. Planning and Review Processes

An overview of the internal and external planning and review processes was presented in Section 3.2. The strategic and, more specifically, the medium-term plan provides the foundation on which the annual work plan is based. Project proposals and protocols are produced for the project-based annual planning process. Protocols are of two types: two-page project protocols that summarize activities, and experimental protocols that give details for each activity within a project. A portfolio of project protocols is prepared by each Thrust Coordinator for resource allocation consideration at the September Thrust Council meeting and general discussion at the October Annual Programme Planning Meeting. Each year, one thrust is reviewed in detail at the Annual Programme Planning Meeting, while interest group meetings are also held. Attendees at the Annual Programme Meeting include senior staff of ILCA, members of the Programme Committee of the Board of Trustees and, at the discretion of ILCA

Management, outsiders including representatives from NARS. After the meeting, cost centre heads submit their budgets together with non-project-specific maintenance fund requirements to the DDG(R), for review and consolidation in the budget.

The Programme Committee of the Board of Trustees considers the proposed programme and budget after the Annual Programme Planning Meeting, while the Executive Committee, also meeting at this time, gives approval to continue with programme implementation. Formal approval by the Board of Trustees, of the current year's work plan and budget, occurs in May.

The programme planning process appears to have two components. One is internal in which the Thrust Coordinators, the Thrust Council and the DDG(R) are decision makers in this hierarchical order. The other component is broader, with the Programme Committee, some NARS representatives and research staff at the Centre making inputs but not operating to a significant extent as decision makers. On balance, apart from the issue of further formalizing the disciplinary peer review process (see Section 3.2.3.), the Panel believes the current process of planning and reviewing the research programme is as consultative and participatory as is practically feasible.

4.4.2. Management of Projects and Activities: An Assessment

As the discussion in Section 4.3.1. indicates, ILCA has adopted a dispersed matrix system of research management and leadership. This is a major change from the situation at the time of the Second EPR when a centralized administrative and management system prevailed. The current research leadership includes seven site Team Leaders, six Thrust Coordinators and three Heads of disciplinary divisions. Because there had recently been many resignations, a high proportion of staff were either new to positions or occupied them in an acting capacity at the time of this review.

ILCA believes that this system of sharing the responsibility for leadership, guidance and supervision of research work suits its geographic distribution of activities and multidisciplinary approach. ILCA's matrix structure was conceived in accordance with its long-term strategy, MTP, and projections of growth. However, given ILCA's current size and flat funding prospects, the structure is not optimal. It has too many leaders/coordinators: currently well over half of the international staff in the Research Department have formal administrative/research management duties. As a result, scientific staff on average spend less than 50% of their time on their personal research, the remainder of their time is spent on administration/research management (see Appendix VI). Furthermore, responsibilities are widely spread, leaving few with real authority or accountability.

Research conducted at zonal sites is generally far away from Thrust Leaders responsible for guidance and oversight. Teams are small and, given communication and travel difficulties in Africa, linkages from HQ to the sites and between sites are weak. As a consequence, research staff do not get a sufficient breadth of scientific support. This concern is especially real at times like the period of this review when many of the research leaders are acting or new to the post.

Given the multiplicity of research leaders dispersed over large geographical areas, it would appear that managing the research projects and activities is a very complex

process. In fact, in the Centre's hierarchy, it is apparent that the Thrust Coordinators have the authority -- although this is not reflected in any organizational charts of ILCA. The issue is, therefore, whether the thrust approach with the designated Coordinators, is an efficient way of organizing and managing research. Theoretically, its strength lies in creating a setting in which multi- and interdisciplinary work is encouraged, but in some zonal sites the division of work into thrusts is creating boundaries. However, after considerable discussion with individuals at HQ and at the zonal sites, the Panel is of the opinion that there are a number of problems. Three of these include:

- 1) Research leadership is sometimes not apparent. In practice the role of many of the Thrust Coordinators often appears to be confined to ex ante evaluation and approval of a research project, and ex post evaluation of the results. Thus this implies more of a reactive judging-type role rather than genuine scientific leadership during the implementation of the research project. Because this research leadership is expected of the Thrust Coordinators, no one else provides this function.
- 2) The thrusts, as currently constituted, do not actually provide the necessary focus for which they were initially designed. For example, the Cattle Milk and Meat and Small Ruminant Meat and Milk Thrusts, while providing a basis for partitioning the annual research budget, do not clearly describe specific areas of research activity.
- 3) Disciplinary input has been marginalized. Many of the techniques used in multi- or interdisciplinary research relate back to specific disciplines. Sometimes, it appears that this disciplinary rigour has been sacrificed, thereby reducing the scientific quality of the research.

The Panel concludes that some restructuring of the research management system is necessary.

Recommendation 4.2.

A more simplified research management system should be used in the design and implementation of the next medium-term plan.

The Panel hesitates to suggest a specific strategy but believes that an option that arose in discussions between the Panel and research management at ILCA deserves serious consideration. In essence it was suggested that three "thrusts" (i.e. programmes) could be created within which a limited number of projects, with project leaders, would operate. Possible programmes could be:

- 1) Livestock Productivity -- combining research activities to improve cattle and small ruminant productivity through improved nutrition, health, breeding and management.
- 2) Natural Resource Management -- combining research involving feed and other natural resources in livestock and crop - livestock systems.
- 3) Livestock Policy and Systems -- combining policy, economic and socio-economic research relating to livestock in natural resource management, livestock systems and crop - livestock systems.

The Programme Leaders would be senior scientists who could provide both scientific leadership and research administration. They would be responsible for not only ensuring implementation of a multi- or interdisciplinary approach but also for ensuring peer review within their programmes. They would be directly answerable to the DDG(R). To provide focus to the programmes, a limited number (e.g. not more than 15-20) of large projects (e.g. peri-urban dairy, trypanotolerance) would be delineated in the next MTP. There would be Project Leaders for each project and a budget associated with each project. However, administrative tasks would be handled by the Programme Leader with the Project Leader being responsible for research aspects of the project. The Programme Leaders could each be allocated a portfolio of cost centres. The current responsibilities of the cost centre leaders could be maintained.

Recommendation 4.3.

Any restructuring of ILCA's research management should give emphasis to the need to identify senior positions which could supervise the Centre's programmes and give leadership to its research staff.

It would be quite easy to graft such an approach onto the current planning and review process. The Panel believes that such an approach could also be adapted to the ecoregional system (see Chapter 8), when it is implemented. The existing Thrust Council could be reconstituted as a Research Council, to include the Programme Leaders and other "leaders" (e.g. two to three each) nominated by the DDG(R) and elected by the scientific staff.

The role of Network Coordinators could be reconsidered in conjunction with changes in the thrust structure. It is the Panel's view that ILCA could consolidate network coordination on a regional basis. Network Coordinators could be located in strategic locations in sub-Saharan Africa, and while acting as coordinators for their own network could also play a liaison role for the other networks operating in their region. This could help in improving efficiency and would be less confusing to NARS counterparts who currently liaise with a multiplicity of personnel within ILCA vis-à-vis networks (i.e. up to five Network Coordinators plus a Liaison Officer), in addition to collaborators in many other international organizations. Network Coordinators would come under the jurisdiction of the programme with which their network relates.

The Disciplinary Division cost centres (i.e. Animal Science, Plant Science, and Livestock Economics) would continue to carry out strategic and other Centre-wide research and also provide specialized scientific input to projects; these efforts could continue to be allocated to the programmes in the same way as the zonal cost centres.

Recommendation 4.4.

ILCA should consider consolidating network coordination on a regional basis. Network Coordinators could be located in strategic locations in sub-Saharan Africa, and while acting as coordinators for their own network could also play a liaison role for the other networks operating in their region.

CHAPTER 5 - DISCIPLINES

5.1. Introduction

5.1.1. Resource Allocation

Table 5.1. provides some information on the breakdown of the expenditures between the three Research Divisions (i.e. Animal Science, Plant Science and Livestock Economics) at HQ. However, it is an incomplete picture of the activities of the Divisions because many staff associated with the disciplines are located away from HQ. Their salaries and related research expenses are debited to other cost centres. Like for other cost centres, the total expenditure of the Divisions has decreased in the last two years, but the balance among the Divisions has remained approximately the same.

Table 5.1. Discipline Divisions, Expenditure and Staffing
by Cost Centres (1988-91)

	Percent of Total Expenditure				1991 Staff %	
Division	1988	1989	1990	1991	Prof ¹	Sup ²
Animal Science	51	47	40	44	50	53
Plant Science	31	34	35	34	33	37
Livestock Economics	18	19	25	22	17	10
Total Staff Number					12	57
Total Expenditure (US \$ million)	3.9	3.8	3.1	2.2		

1. Figures include international scientists, local professionals, visiting scientists and associate experts as in October 1991.
2. Support staff as in October 1991.

Source: Financial Controller's Position Paper, June 1991, Table IIX-05; October 1991 Staff List.

5.1.2. Scientific Impact

Central to any review of a research institution is an assessment of the scientific impact of the programmes. Noting ILCA's important role in strengthening NARS, the urgent need for improved technologies, and the difficulty and long-term nature of much livestock research, the Panel recognizes that ILCA's scientific output should not be judged on the same basis as advanced institutions in developed countries. Nevertheless, given the fact that considerable resources are being invested in ILCA, NARS and other agencies involved in livestock development should be able to look to ILCA as a centre of excellence and source of innovation in livestock research in Africa.

The Panel notes that the Quinquennial Review in 1981 judged the scientific output and quality of publications of ILCA staff at that time to be below the standard expected of an IARC. The 1986 EPR Panel noted that ILCA planned to promote the publication of high-standard publications by making the publication record a factor in assessing staff for merit raises and in recruitment.

We have found it difficult to review the scientific impact of ILCA in depth through citation analysis or other approaches, although the Centre might consider such a review as one way to monitor scientific output and quality. The main criterion for which data were available to the Panel was the number of publications. However, even for this criterion the complexity of the interdisciplinary authorship of ILCA publications and the high staff turnover rate made the analysis difficult. Using the most recent publications list and data on the actual number of senior scientist years (i.e. international scientist years) worked at ILCA, the Panel calculated that during 1987-91 ILCA staff published an average of only 0.78 papers in refereed journals or books per senior scientist year; three unrefereed papers or reports were published for every refereed paper. It should be recognized that an average such as this does not reflect the excellent research publication record of a number of individual scientists and of groups such as the Trypanotolerance Thrust. By way of comparison with the ILCA-wide average, data given in the 1990 EPR Report on IITA were 0.82 refereed papers per IITA scientist year and 3.8 papers in the grey literature for every refereed paper. Livestock research carried out by ILCA does not always lead easily to publication. ILCA Management should redouble its efforts to encourage staff to publish and reinforce this with appropriate incentives and other measures.

5.1.3. Recommendations

Four of the recommendations in this Chapter relate to specific Divisions, while the other five are general and relate to all three Divisions. The general recommendations are listed together in Section 5.6.

5.2. Animal Science Division

5.2.1. Objectives

The overall objectives of the Animal Science Division are to conduct multidisciplinary programmes (breeding, nutrition, reproduction and health) in collaboration with the other Divisions in order to develop technological packages and strategies for the improvement of animal health and production in sub-Saharan Africa (SSA).

Details concerning the three main sections of the Division and their objectives are as follows:

- 1) Animal Breeding and Production Systems Section. To evaluate the productive performance of various livestock genotypes found within diverse ecologies and production systems in SSA in combination with NARS; identify genotypes appropriate and most adapted for these areas; develop breed improvement programmes; and, to

model the performance, management and economics of livestock production systems in order to better understand their functional nature.

2) Animal Reproduction and Health Section. To determine current productivity levels and improve knowledge of the reproductive physiology of tropical cattle, sheep and goats; investigate the major factors constraining animal reproductive potential; study the epidemiology of diseases limiting animal reproduction and production, the basis for variation in genetic resistance to endoparasites in small ruminants, and causes of lamb and calf mortality and infertility of male and female livestock; evaluate the economics of lamb and calf mortality, low fertility, and long calving intervals and analyze cost/benefit consequences of management packages developed by the programme; develop management packages and/or technologies to maximize cattle and small ruminant milk and meat productivity in the peri-urban, rural integrated crop - livestock and agropastoral production systems; and, to develop research techniques that can be adopted by NARS scientists.

3) Animal Nutrition and Management Section. To give research support, supervision and advice on routine analyses of samples; generate new analytical methodologies; and develop research tools for feed evaluation of the major feedstuffs in SSA.

5.2.2. Activities

Although this is a discipline-oriented Division, activities are scattered and the only formal linkages between the scientists at the zonal sites and HQ are through the DDG(R). The Division Head keeps in some contact with the zonal sites through regular visits. International staff experienced in nutrition are located at HQ, Kaduna, Niamey and Debre Zeit. Animal breeders and health specialists are found at HQ, Mombasa and Nairobi, whereas experience in reproduction is only found at HQ and Ibadan. The Thrust Coordinator for Cattle Meat and Milk, a nutritionist, is stationed at Debre Zeit. There is a need to define precisely the type of strategic research which requires sophisticated research facilities, and at which site it needs to be done.

The Panel is aware that the technique for storing and transfer of embryos is available at ILCA and can be used to produce homozygotic twins for experimental purposes. Deep-frozen embryos and semen and embryo transfer can also be used for the conservation of germplasm of African breeds. ILCA should not be directly involved in this unless it receives substantial special funding for this purpose.

5.2.3. Assessment

The current Division Head arrived in July 1991. Staff morale at HQ and interaction with other Divisions at HQ is good, as are the facilities. Staff participate in a number of Common Interest Groups such as: research approach and methodology in nutrition; technology and animal production; animal health and production; breeding and production systems; and, peri-urban dairy production.

Staff consider training courses to be an excellent opportunity to interact with people from the field, although they have doubts whether their training responsibilities are adequately reflected in their evaluation.

Under the present organization there is no formal input required by the Division in the research protocols of the thrusts and the Division Head is not a member of the Thrust Council. The Panel believes that the contribution of the division specialists to the Centre's overall research programme should be formalized.

The Panel recognizes the fact that ILCA shares common interests with ILRAD in the use of identical twins, embryo transfer, genetic resistance against disease, study of production systems and epidemiology. The two institutes are complementary to each other in terms of ILRAD's genome mapping and ILCA's quantitative genetics, the socio-economic impact of diseases on livestock production, the access to NARS, and nutrition and disease interaction. They are less interactive with respect to system modelling and the use of GIS.

The Panel recognizes that certain factors have a negative influence on the quality of animal science at ILCA as a whole. These include:

- 1) Staff members of the Division are scattered all over Africa. Scientific meetings and telecommunications (although a network is under way) are insufficient in ensuring an optimal critical mass of senior animal scientists.
- 2) There are too many poorly focussed research themes and activities, while others are heavily dependent on inputs from scientists in poorly funded NARS.
- 3) Supplementary feeding has a positive effect on reproductive performance, production of meat, milk and traction, and also the health status of sub-clinically sick animals. ILCA has further investigated these interactions. However, most of these investigations have not tackled the main subject (i.e. how the farmer with his/her available resources can improve the nutrition of the animals in an economic and practical way). The efforts of ILCA in basic nutritional research need to give top priority to improvements in the utilization of fibrous feedstuffs by ruminants. Important topics could include the following: development of roughage evaluation systems; supplementation strategies and development of methods of feed preservation, pasture evaluation and MPTs; genetic selection for nutritive value of crop residues; and, interaction of animal traction with reproduction and crop yield.

The Panel has reservations about some technical aspects of nutrition research recommended by a consultant, particularly in relation to the interpretation and value of purine analysis, feed intake measurements and heritability of fat deposits. ILCA should carefully consider this research before proceeding. ILCA Management should also consider carefully at which sites the methodologies should be further developed and tested.

The Panel is aware that the interdisciplinary approach has greatly improved in the field of animal science. It recognizes, however, that certain activities, still remain rather

isolated. Livestock system analysis and systems modelling is one such an area. If ILCA wants to be successful, these themes must be linked with soils, plant and economic modelling. The Panel is aware of the fact that an overall model will perhaps never be developed, but expresses concern that livestock modelling could be done in isolation from crops and soils. ILCA has a comparative advantage in modelling because of its in-house knowledge and through its contacts with other IARCs. This type of research cannot be developed by NARS acting alone, but some strong NARS should be directly involved from the outset in the development of the methodology.

ILCA has no comparative advantage in strategic investigations of causal organisms of infectious diseases, development of diagnostic tools or vaccines. The strategic use of drugs should also be left to the NARS. However, it has a comparative advantage with respect to multi-factorial thinking in the field of animal health. The Panel considers that ILCA can use this advantage by strengthening its quantitative epidemiology through close collaboration with ILRAD. It also has a comparative advantage in the studying of genetic resistance against diseases, as has been shown in collaborative work with ILRAD on trypanosomiasis. It could use the same methodology in the study of genetic resistance against endoparasites in small ruminants.

The impact of the Division has been good in the areas of training, and research collaboration with, and adoption of its methodologies, by NARS. However, there is still an urgent need for the development of more suitable technological packages in cooperation with the NARS for the improvement of livestock production.

The Panel suggests that ILCA should play a supportive role in the preservation of animal germplasm.

Recommendation 5.1.

ILCA Management should seek further technical advice through consultancies on the methodology of livestock modelling, ruminant nutrition and quantitative epidemiology.

5.3. Plant Science Division

The Plant Science Division comprises three sections namely, Forage Agronomy, Soil Science and Plant Nutrition, and Forage Genetic Resources.

5.3.1. Forage Agronomy

5.3.1.1. Objectives

The objective of the Section is to conduct strategic research with multi-purpose trees and to integrate forages into cropping systems.

5.3.1.2. Activities

Office and laboratory facilities exist at HQ while Debre Zeit is the main experimental site. Research has identified promising forage germplasm for different

ecological zones (e.g. annual native highland Trifolium spp., Stylosanthes spp., Lablab purpureus, Cajanus cajan and species of the genera Erythrina, Leucaena and Sesbania).

Screening and selection of promising accessions of Leucaena and Sesbania for use as supplementary livestock feed is continuing. The focus is on evaluation of species variation in acceptability and palatability, nutritive value and phenolic content. In 1989, work was started on the agronomy of best-bet MPTs to identify suitable accessions for Ethiopian conditions.

Work on legume-based crop - livestock systems is conducted jointly with the Soil Science and Plant Nutrition Section, and aims to quantify and compare the effects on productivity of various systems combining legumes with cereals (i.e. rotations, intercropping and alley farming).

Within the Section there is the Herbage Seed Unit, established in 1988. It has offices, laboratory facilities and a field at Debre Zeit Research Station. The Unit aims to catalyze the production and supply of recommended forages within national crop - livestock systems.

5.3.1.3. Assessment

Senior staff turnover has been high and currently there is no Forage Agronomist. The Section has a key role to play in controlling the scientific quality of research protocols in agronomy as well as providing professional back-up to agronomic research both at HQ and zonal sites. Furthermore, agronomy provides a vital disciplinary link in studies of the soil-plant-animal system (e.g. nutrient cycling) inherent in farming systems work. The Panel strongly suggests that the Section be strengthened with agronomy expertise to cater for the needs of HQ and zonal sites.

Work of the Section has been scientifically sound although, because of insufficient staff, the current programme cannot fulfill its important role in forage evaluation. Collaborative research and training activities related to forage agronomy have been undertaken.

5.3.2. Soil Science and Plant Nutrition

5.3.2.1. Objectives

The objectives of the Section are to plan, organize and implement strategic research in soil science and plant nutrition, and to provide inoculants and soil analytical services to ILCA programmes and the African Forage Resources Network.

5.3.2.2. Activities

Office and laboratory facilities exist at ILCA HQ while field work is mainly undertaken at Debre Zeit. Research work has included soil resource characterization, phosphorus management in forage legumes and biological nitrogen fixation by forage legumes in highland cropping systems.

5.3.2.3. Assessment

The Section is staffed with one international scientist. The work of the Section is, generally, scientifically sound though most of it has been on-station rather than on-farm. One problem is that the soil scientist has to cover too many subdisciplines of his field (i.e. pedology, soil conservation, chemistry, physics and microbiology). This spread of responsibilities makes it difficult for him to focus and go into depth on many research problems.

The Section collaborates with the Forage Agronomy Section in research. It also collaborates with a number of international and national agencies (e.g. FAO, IAEA, IFDC, ICRISAT, IBSRAM and the Institute of Agricultural Research (Ethiopia)).

Although the Section is responsible for providing technical guidance to zonal sites on soil science and plant nutrition research, agronomic experimentation in zonal sites outside Ethiopia and Nigeria is deficient in expert advice on soils. The Panel suggests that the Section strengthens its links with zonal programmes and that this should include joint research. The Panel is of the view that the Section should play a leading role in the characterization of soils at zonal experimental sites. Furthermore, in order to better deal with the broad programme responsibilities of the Section within ILCA, the Section should take a lead in incorporating a modelling approach into agronomic research protocols. This will ensure that soil-related (model) parameters and observations are collected while the experiments are in progress.

If ILCA takes responsibility as an ecoregional centre for the cool tropics AEZ in SSA, soils research, particularly in the area of soil and water conservation will have to be strengthened, and a major reorientation of the research programme would be required.

5.3.3. Forage Genetic Resources

5.3.3.1. Objectives

The objectives are to collect and characterize forage germplasm for research, distribution and long-term security storage. Recently, priorities have changed from collection and acquisition of forage germplasm to characterization and evaluation of existing accessions. Attention is also given to the correct scientific identification of the materials held at ILCA.

5.3.3.2. Activities

Most of the activities of the Section are carried out at ILCA headquarters where good facilities exist. They include offices, the gene bank, a herbarium, a seed testing laboratory, an *in vitro* culture laboratory and shade houses. Characterization of germplasm is carried out in the field at three sites in Ethiopia (Debre Zeit, Zwai and Wolaita Sodo).

Current activities in the Section include gene bank operations and germplasm distribution; management of genetic resources data; seed regeneration; *in vitro* culture; characterization of germplasm resources; strategy and methodologies for morphological characterization of germplasm during multiplication; reproductive biology and seed

production of forage germplasm; and studies on crossability, pollination and seed production of Sesbania. Seed-health testing and virus control by the use of meristem culture and thermotherapy techniques will begin in 1992.

Currently, the gene bank holds the largest collection of forage germplasm in Africa. Gene bank data have been computerised.

Strategic research to support gene bank activities has resulted in the development of appropriate in vitro culture techniques for the collection, multiplication, storage and distribution of the forage grasses Cynodon and Digitaria, which rarely produce seeds. A training course in in vitro techniques is being developed for NARS staff.

5.3.3.3. Assessment

The Section is adequately staffed with one international scientist and support staff. Work of the Section is scientifically sound. Efficient techniques for the collection, multiplication, maintenance and distribution of germplasm have been developed. These techniques have other potential uses (e.g. in forage breeding), and are a significant contribution to science. The Panel commends the Section for this achievement.

The Section collaborates with the Herbage Seed Unit in germplasm multiplication, and also with NARS in germplasm evaluation. The Panel suggests that sites for forage germplasm evaluation should, as far as possible, be representative of all high-priority AEZs in ILCA's strategy.

Recommendation 5.2.

The position of Head of Plant Science should be filled and the Division should increase its input into ILCA's research work at zonal sites.

5.4. Livestock Economics Division

5.4.1. Objectives

Work in the Division is aimed at contributing to ILCA's commitment to improving the sustainable economic output of livestock.

5.4.2. Activities

Activities are divided into two major research areas: livestock policy and production economics and marketing. Most of the policy (i.e. macro) work is undertaken in the Livestock Policy Thrust which is centred at ILCA headquarters. Production economics (i.e. micro) activities are concentrated in the other thrusts and are usually found in the zonal programmes. Because of the single discipline orientation of the Livestock Policy Thrust, detailed consideration of issues relating to it are deferred until Section 7.7. The major research activities of the Division in each of the other thrusts, are as follows:

- 1) Cattle Milk and Meat Thrust. Identification of policy and institutional determinants of smallholders milk and meat production and marketing; and, investigation of social and economic obstacles to increased production and consumption.
- 2) Small Ruminant Meat and Milk Thrust. Impact of improved production systems on farm income and producer welfare; and, analysis of social and economic factors affecting technology uptake.
- 3) Animal Traction Thrust. Diagnosis of technological, social and economic constraints in using draught animals in the subhumid zone; evaluating adoption of animal traction packages (e.g. including credit, veterinary services, etc.); evaluating impact of improved animal traction technology on food production and income; and, use of manure in integrating crop and livestock production.
- 4) Animal Feed Resources Thrust. Identification of economic and institutional factors inhibiting the optimum use of feed resources.
- 5) Trypanotolerance Thrust. Economic evaluation of selected tsetse-control measures and the use of prophylactic drugs.

5.4.3. Assessment

Three of the eight international economist positions are vacant, namely the Division Head and the posts at Bamako and Kaduna. Furthermore, none of the five existing staff have been employed by ILCA for more than three years. The last EPR had recommended that resource allocation with respect to livestock economics research should be in the proportion 30:70 (macro:micro). In terms of actual research resource allocation during the period 1988-91, the ratio is 16:84. The Panel believes the current ratio should not be allowed to move any further in favour of micro work.

During the last five years, a high turnover of staff (i.e. 12 international economists have worked in the Division) has inevitably caused discontinuities in the work programme. The Panel believes it is important to have a full-time economic presence at each of the zonal sites, although in some cases, local professionals may be appropriately used. As the move towards an ecoregional approach takes place, the necessity of having an ILCA-sponsored economist at every zonal site may be eliminated through sharing the services of the host Centre's economist.

An important dimension of the work of economists in the zonal sites is in bringing a socio-economic dimension to the work of the "biological" scientists. Certainly the economists in such teams appear to operate well in a multidisciplinary mode. However, the relevance of much economic work in the farming systems approach is improved if research activities are executed jointly by representatives of different disciplines (i.e. interdisciplinary). Undoubtedly some research activities are being undertaken, that include economists, but we sense the degree to which this takes place could be productively increased particularly in experimental activities involving farmers. In other words, we believe that economists can play a useful role earlier in the research process (i.e. especially in trial work) than is often recognized by scientists, rather than simply assessing the appropriateness of the technology once it has been developed.

The geographical scattering of economists means that opportunities for interaction have been limited. Therefore there have been differences in the methodologies used to study particular topics in different locations (e.g. milk consumption in the Addis Ababa, Kaduna and Ibadan areas). Because of this, the potential for cross-site comparisons of the results is somewhat limited.

The farming systems approach plays a prominent role in ILCA's research programme. With recent developments in rapid appraisal and farmer participatory techniques, and increasing emphasis on gender issues, sustainability, and measuring impact and adoption, inputs from a sociologist, possibly a Rockefeller postdoctoral fellow, could be particularly valuable.

Three suggestions of the Panel with respect to social science work in thrusts, other than livestock policy, at the zonal sites, are as follows:

- 1) The Panel suggests the annual meeting of the economists be formalized so that greater standardization of the methodologies and analytical procedures is encouraged in research activities that are common to more than one location -- thereby permitting cross-site comparison of the results.
- 2) Efforts are made by economists at the zonal sites to play less of a passive and often ex post reactive role in research activities and substitute it with a more active ex ante role. This can be implemented through examining all proposed research protocols carefully to ascertain whether there is potential for a social science input earlier in the research process than is usually the case.
- 3) At the next EPR the staffing situation in the Division should be reviewed. It may well be that if the ecoregional approach is implemented, that other IARCs in the zone could sometimes provide the necessary economic input.

5.4.4. Recommendations

Recommendation 5.3.

Research teams at all zonal sites should include full-time agricultural economists on a long-term basis.

Recommendation 5.4.

ILCA should, once again, employ a sociologist at HQ who could interact with economists and Graduate Associates at the zonal sites.

5.5. Research Support

5.5.1. Introduction

The Research Support Division is a loose grouping of a number of service units at ILCA HQ. Two of the units, the Nutrition and the Soil Science and Plant Nutrition laboratories, were shifted administratively in 1991 but both laboratories, and the

Computer and Biometrics Section, which remains in the Research Support Division, continue to supply services to research programmes at HQ and zonal sites and are discussed in this section of the report. The other component of the Division is the Experiment Stations Section which falls largely under the Debre Zeit Research Station and is discussed in Section 6.2.

5.5.2. Computer and Biometrics Section

5.5.2.1. Activities

The objectives are to provide biometrics support to ILCA staff and collaborating scientists; technical support to mini- and microcomputer usage; training in biometrics and computing to ILCA and NARS; and applied research in biometrics and computing.

In addition to research support the Section provides backup to the information and training and the finance and administration programmes at ILCA. At HQ the equipment includes a HP3000 minicomputer and 143 IBM compatible microcomputers, which are being linked into a local area network. The 52 microcomputers at the zonal sites and liaison offices are also supported by the Section which has also been responsible for ensuring that the electronic mail links inside and outside ILCA are kept up to date.

The international staff at HQ includes a section head who is competent in both computing and biometrics, a biometrician, and a data management specialist; they are supported by eight proficient local staff, including two senior programmers. Programmers have also been posted to zonal sites. In the biometrics area, a full-time staff member is based at Bamako and a part-timer in Nairobi. Biometricians provide advice on request to all ILCA scientists and have responsibility to check over and approve all detailed experimental plans. The Section is also heavily involved in training and in research which includes work on a Livestock Information and Management System, comparisons of statistical packages in terms of the needs of NARS, and innovative methods for statistical analysis of experimental data on livestock.

5.5.2.2. Assessment

The Section is well staffed, well equipped and provides excellent support to the research and administrative groups at ILCA. The decentralization of the biometrics staff, in response to the 1986 EPR recommendations, is intended to ensure that the scientists and the biometricians are able to collaborate more closely. The Panel is not sure that ILCA's programmes in West Africa are being well serviced. The biometricians can be most effective if they are given opportunities to visit the experimental sites and gain a better understanding of the problems in the field. The location of the biometrician at Bamako should be re-assessed.

At present no watertight centralized filing/retrieval system exists for systematic computerizing and archiving the vast amounts of data which are produced at ILCA HQ and at the zonal stations.

5.5.3. Nutrition Laboratory

5.5.3.1. Activities

The Nutrition laboratory was begun in 1980 as a research support unit serving ILCA livestock scientists at HQ and the zonal sites. A major activity of the laboratory is in training. The laboratory is under an international scientist and has a number of other support staff.

5.5.3.2. Assessment

The laboratory participates in a Wageningen University plant-analytical-exchange programme as a means of quality control. There are apparently some problems in maintaining some of the equipment and ILCA should consider hiring a specialized instrument technician. The Panel is aware that scientists in the zonal sites are seriously concerned about delays in getting results back from the nutrition laboratory. This important issue and the need for a review of the role of the laboratories are further discussed in Section 5.5.4 below.

5.5.4. Soil Science and Plant Nutrition Laboratory

5.5.4.1. Activities

This laboratory has provided a service to ILCA scientists since 1983. In addition to recently introducing a service in soil physical measurements, the laboratory provides legume inoculants to the ILCA HQ and zonal site programmes and the African Feed Resources Network. Staff includes one international staff member.

5.5.4.2. Assessment

The laboratory has recently made a concerted effort to standardize its procedures by employing consultants to prepare manuals of techniques for sampling, sample preparation and measurements. Complaints about delays in sample analysis are common at zonal site and the Panel encourages the DDG(R) to follow through on his recent initiative to clarify the objectives and roles of the laboratories at ILCA. The recently introduced practice of charging cost centres a realistic price for analyses should help improve efficiency. However, the analyst and the biological scientist have to be able to liaise closely to ensure that the scientific quality of the research is high. Installation of some laboratory facilities at zonal sites will help achieve this, provided high-quality analyses can be achieved and monitored effectively. At zonal sites only relatively simple analyses should be attempted, leaving the more sophisticated analyses to HQ. The continuity and stability of electricity supply at ILCA HQ provides opportunities for upgrading the inventory of instruments to a level not possible at many laboratories in Africa.

Bearing these issues in mind, and taking into account the implications of the move to an ecoregional approach in the CGIAR, the Panel considers that the future roles of the nutrition and soils laboratories will evolve very differently. The Nutrition laboratory could develop a capacity for more sophisticated analyses to service all of

ILCA's livestock research. The soils laboratory might concentrate on samples from the highlands programme.

5.6. General Recommendations

There are five general recommendations that apply to the work of all the Divisions:

Recommendation 5.5.

Efforts should be made to ensure disciplinary peer review is available for research in all locations throughout the research process.

Recommendation 5.6.

Whenever possible, ILCA's strategic research should be confined to locations with good facilities and the necessary numbers of scientists for effective teamwork.

Recommendation 5.7.

Site characterization (e.g. soil characterization and on-site variability, climate, socio-economic characterization, etc.) should be a high priority in order to help explain causal relationships and help in extrapolating the results to other locations. Modelling may be useful in providing an understanding of underlying processes.

Recommendation 5.8.

On occasion, ILCA should commission external reviews of particular areas of research and research support to provide independent evaluation and new insights.

Recommendation 5.9.

Because of the amounts of research data produced by ILCA, a more efficient coordinated filing/retrieval system for computerizing and archiving the data should be developed.

CHAPTER 6 - ZONAL RESEARCH SITES

6.1. Overall Setting

In 1987, ILCA decided in its strategic plan to concentrate its efforts in the semi-arid, subhumid, humid and highland zones. Research in these zones is based at six zonal research sites which are discussed in this Chapter. To provide a background overview of the area, livestock population and the ILCA research effort at these sites, the Panel prepared Table 6.1.

For a discussion of the strategic role of these sites in ILCA's future programmes, the reader is referred to Chapters 8 and 12.

6.2. Highlands - Ethiopia

6.2.1. Setting

The Highlands Programme is coordinated from the ILCA HQ and two substations in Ethiopia are maintained. The Debre Zeit research station, located approximately 50 km southeast of Addis Ababa in the highly populated Ethiopian highlands, at an altitude of 1,920 m above sea level, represents the cool semi-arid tropical belt of SSA. The area of the station is 210 ha, mostly Eutric Vertisols.

A second substation is located at Debre Berhan, some 90 km northeast of Addis Ababa. With an altitude of 2,800 m above sea level, it represents the cold tropical belt. The station is mainly used for sheep breeding. Apart from these ILCA research stations, there are outreach research sites at Deneba/Inewari, Selale, Ginchi, Holeta and Alemaya. Another site at Were Ilu (Degolo) in the Welo Region was recently temporarily closed due to the political turmoil.

6.2.2. Programmes

Four thrusts are active in the Highlands:

1) The Animal Traction Thrust. Research is concentrated on aspects of animal draught on Vertisols.

2) The Cattle Milk and Meat Thrust. Similar draught animals are studied from the perspective of meat/milk production, reproductive wastage and feeding optimization. Research is also devoted to improving the dairy enterprise of the smallholder through the introduction of crossbred cows and by testing and adapting technologies for the processing of dairy products.

Table 6.1. Livestock and Site Information by AEZ and Zonal Site ¹

AEZ	% Total Area	% Cattle ²	% Sheep ²	% Goats ²	% TRLUs	Zonal Sites	% Zonal Site Budget ³	% Zonal Site Prof. Staff ⁴	% Zonal Site Supp. Staff ⁵
Arid	35.6	20.7	33.7	38.2	29.8				
Semi-Arid	18.6	30.6	22.9	26.3	27.1	Niamey	12	17(----)	----
Subhumid	22.2	22.7	14.4	16.5	19.6	Bamako	22	30(40.0)	17
						Kaduna	17	22(20.0)	37
						Mombasa	11	11(10.0)	6
Humid	19.0	6.1	8.3	9.4	6.1	Ibadan	13	17(10.0)	30
Highland	4.6	19.9	20.8	9.6	17.4	Debre Zeit/Berhan	25	17(20.0)	11

1. Other physical information can be found in Chapter 8.

2. Data from ILCA's Strategy and Long-term Plan.

3. Estimated 1991 expenditures.

4. First figures are international scientists and the second figures are local professionals and visiting scientists.

5. Support staff. No record for Niamey.

Source: October 1991 Staff List; Information provided by Financial Controller.

- 3) The Small Ruminants Milk and Meat Thrust. This work focusses on the identification of sheep breeds, on optimization of sheep fattening towards strategic markets, and on breeding/selection for internal parasite resistance.
- 4) The Animal Feed Resources Thrust. A wide range of activities in the highlands such as the forage genebank, herbage seed unit, assessment of local browse species and forage agronomy are included.

Eight out of 15 projects can be classified under the Animal Traction Research Thrust. The majority address problems related to Vertisols in Ethiopia.

6.2.3. Assessment

The Team Leader of the Highlands Programme is the Acting Thrust Coordinator of the Feed Resources Thrust. The staff include two international and two local professional scientists and one graduate associate. The research facilities at Debre Zeit have expanded considerably since the previous review.

The Highlands Programme is an example of how a snowball effect can be achieved through cooperation with other national and international institutions. This applies especially to the Vertisol Programme where a concerted research effort is being conducted with involvement of the following institutions:

- Institute of Agricultural Research (Ethiopia) (IAR);
- Alemaya University of Agriculture (Ethiopia) (AUA);
- Ethiopian Agricultural Implements Research and Inspection Centre (AIRIC);
- ICRISAT;
- IBSRAM;
- AFRC Institute of Engineering Research, Silsoe, UK; and
- Oxfam America.

The loose alliance between these institutions with a common goal is institutionalized as the Joint Vertisol Programme (JVP), and has been crucial to the wide testing and improvement of Vertisol technology. From the beginning efforts were made by the JVP to collaborate with the Ministry of Agriculture and the Agriculture Development Department (ADD), which could be used as a vehicle to extend the new technology to the farmers. Collaboration consisted of training ADD staff at Debre Zeit in Vertisol technology, involving a senior ADD staff in the JVP Technical Committee, having ILCA forage agronomy trials on ADD field trial sites, and final testing of ILCA technology at ADD field trial sites.

At present, collaboration with the extension services has stagnated. Despite the promising results in adaptive trials, little of the Vertisol technology has been adopted by the farmers. Possible reasons include: limited time of exposure to the farmers; lack of

logistic support to go along with the implement; insufficient involvement of the national extension system and upheaval of agricultural communities followed by the dissolution of peasant cooperatives.

The Highlands Programme has been very successful in identifying farmers' constraints in Ethiopia and designing research efforts to solve these problems. The key to this success has been:

- a farming systems perspective from the beginning;
- involvement of several national and international institutions;
- large-scale work on farm verification for years and continuous feedback to the researchers;
- the multidisciplinary approach; and
- effective central coordination of the various disciplines which were sharing responsibility in the Highlands Programme.

The achievements of the Highlands Programme include the development of the broadbed maker and its attachments, and the exploration of new improved cropping packages which go along with the consequently improved surface drainage of Vertisols. Other developments are: gaining new insights into plant nutrient requirements on Vertisols especially for forage crops; assessing the use of cows as alternatives to oxen traction; testing of browse species and fodder legumes; and investigating the scope of fodder banks. The Highlands Programme also takes the credit for the introduction and development of the single ox plough and exploring ways to use cows for animal traction.

The Panel believes that the Highlands Programme is continuing to make good progress and supports the integrated research into crop - livestock farming. However, the Panel suggests that true cost or opportunity cost of "cheap" nutrients such as Egyptian rock phosphate and farmyard manure should be carefully examined. Further goals for the Highlands team could be to study the spatial variability of Vertisols using modelling and to extend its research to farming systems on Nitisols. Such work would extend the applicability of ILCA's work in the East African Highlands and be important in addressing soil conservation issues (also see Section 7.4). Pests and disease problems in crops grown on the broadbed and furrow systems must be addressed. To undertake this important research, ILCA needs to strengthen its disciplinary coverage in the crops area, which could be achieved through a cooperation with other IARCs as well as the IAR.

6.2.4. Recommendations

The Panel believes that the Highlands Programme is poised to enter a new challenging phase involving strategic research on important resource conservation issues on the one hand, and efforts to extend to other regions the technologies already

developed, on the other. To meet these challenges the Programme will need imaginative leadership.

Recommendation 6.1.

The Vertisol technology should be tested widely and refined in collaboration with NARS, ICRISAT and IBSRAM. Furthermore, ILCA should strengthen its strategic research on resource conservation and management in the crop-livestock systems of the cool tropics (highlands) of sub-Saharan Africa.

6.3. Subhumid - Kenya

6.3.1. Setting

This ILCA zonal site is based at the KARI Regional Research Centre at Mtwapa, near Mombasa, the second largest city in Kenya. The Mtwapa Centre has a 215 ha farm, two sub-centres and links to a regional veterinary laboratory at Mariakani.

6.3.2. Programmes

Prior to 1988, ILCA's collaborative programme in Kenya concentrated on a study of the Maasai pastoral system. However, the strategic re-alignment of the ILCA programmes for the 1988-1993 MTP led to a decision made in consultation with the Kenyan Government to shift the emphasis to the subhumid zone. Furthermore, it was decided to concentrate ILCA's resources on strengthening national institutions through collaborative programmes of research, training and information exchange.

The main objective of the research programme is to exploit the considerable potential for smallholder dairying in the subhumid zone of Eastern and Southern Africa, through research to identify and resolve technical and policy constraints to the development, adoption and productivity of sustainable smallholder dairy systems. The research was begun in 1988 and involves a multidisciplinary approach to estimating the demand for milk and dairy products; identifying technical and policy constraints; estimating disease risk to dairy cattle and testing methods for disease control; evaluating dairy cattle breed resources; and developing appropriate feeding systems in mixed smallholder farming systems. In addition there is research on production and marketing, and on resistance to helminth in small ruminants.

Three ILCA thrusts are represented at the Mombasa site:

- 1) Cattle Milk and Meat Thrust. Research to characterize the smallholder dairy production farms showed that local zebu in coconut and cashew-nut mixed cropping systems predominate. Natural pasture is the main feed source, but intensification is

likely in response to population growth and the subdivision of farms. This information is being supplemented by a marketing study and an assessment of available feed resources. Supplementation of forage-based diets for dairy cows and the development and testing of agronomic practices for promising forage species are also under study. Much of this research is on station, but is aimed at supporting the National Dairy Development Project, which is extending the zero-grazing system to smallholder dairy farms at the coast.

Research on diseases confirmed the importance of East Coast Fever and trypanosomiasis as major constraints to smallholder dairy production. Control methods for these diseases are being evaluated. Research has also shown that dairy cross cattle have a much higher potential for milk production than local zebus, although more work is needed on nutrition and disease. An inventory of feed resources is being made and studies of the effects of supplements on intake and production are in progress.

2) Animal Feed Resources Thrust. Ongoing research in this Thrust is concerned with the evaluation of MPT germplasm and grasses and herbaceous legume species for the coastal subhumid zone. Much of the research is done on station, but zero grazing systems based on Napier grass (*Pennisetum purpureum*) are being evaluated on farms. A major problem is the low soil fertility, so studies have been initiated on the re-cycling of nutrients and the nutrient and water interaction in agroforestry systems.

3) Small Ruminant Meat and Milk Thrust. Research in this Thrust includes studies of the genetic resistance to gastro-intestinal parasites in small ruminants and a marketing and consumption study of small ruminant products.

6.3.3. Assessment

Only two international livestock scientists are based in Mombasa, but a post-doctoral associate provides a competent input in agricultural economics. The research collaboration and institution-building role of the ILCA team includes the training of three KARI scientists who, as ILCA Graduate Associates, are enrolled for higher degrees at universities in the U.K. A KARI veterinarian also collaborates with the team. The collaborative relationships and leadership are good. However, the Team Leader spends much of his time on administration, which affects the research effort and his effectiveness as a scientific leader. The problem of critical mass is exacerbated by the large amount of time the other scientist devotes to his role as Coordinator of the Small Ruminant Meat and Milk Thrust.

The living conditions for the staff based in Mombasa are good although special precautions against malaria are needed. Facilities at the Mtwapa Centre have been improved over time, so the research programme now runs smoothly apart from a need for more computers. The experimental farm at Mtwapa is adequate but the soils (Calcisols) are not representative of a large enough area of the subhumid zone. The

subhumid strip along the Kenya coast is also not representative of a large area climatically (for further discussion see Chapter 8). The Panel is concerned that zonal sites are not receiving adequate attention from ILCA HQ in respect to site characterization and agro-ecological classification and stratification (see Recommendation 5.7). This would be especially useful to provide a framework to link the various projects on peri-urban dairying.

The Mombasa team receives more than its fair share of visitors from ILCA HQ and other sites, but there is a need to strengthen disciplinary links, especially in economics. Furthermore, the graduate associate's projects are generating large numbers of samples which are analysed in the ILCA HQ only after long delays. Effective linkages have been developed with other IARCs, including collaborative research with ILRAD, ICIPE and ICRAF on aspects of GIS, disease epidemiology and MPT evaluation.

The Panel considers that the experiments to evaluate grasses, legumes and MPTs are too much concentrated on station. In agroforestry systems, shading and competition for water and nutrients are overriding factors affecting performance, yet the test plots on Mtwapa experimental farms are not subjected to these selection pressures. Innovative approaches will be needed to improve the relevance of this research, and links should be forged with groups in Australia, Southeast Asia and CIAT working on shade-tolerant forages for agroforestry systems.

The collaboration with the Kenyan NARS is soundly based and much appreciated. It involves not only KARI but also the University of Nairobi and the Ministry for Livestock Development. Evidence of research-capacity building was clear, and the linkages from the ILCA team through KARI to the extension activities of the National Dairy Development Programme provide an excellent example of how the effective diffusion of technological innovation can be organized. The ILCA team will not only help generate relevant new technologies for dairy production, but also help create an enhanced research capacity at Mtwapa in the form of three or more KARI scientists with PhD degrees. Furthermore, ILCA's scientists provide counsel on research administration, which is valuable to their more senior KARI counterparts. Thus the potential for impact is encouraging if somewhat limited in scope.

6.3.4. Recommendations

The Panel's overall impression of the Mombasa site was that the research was efficiently administered, in a constructive collaborative relationship with KARI, but too much focussed on local problems. The Mombasa site is a good example of adaptive and applied research collaboration with a strong NARS. However, it also illustrates the dilemma that strategic research is extremely difficult under such circumstances. Although the site team has done quite a good job of characterizing the social and ecological environment in the coastal subhumid zone, they have received little support

from ILCA HQ to link the work into a larger agroecological framework of peri-urban dairying research.

Recommendation 6.2.

ILCA should undertake an agro-ecological study of the research priorities and strategies in peri-urban dairying and assess the relevance of the Mombasa site. The environment of the Mombasa site should be compared with other peri-urban areas, so that the transfer of the results can be facilitated.

6.4. Semi-arid - Niger

6.4.1. Setting

In the semi-arid zone, population pressure and periodic drought have recently forced a substantial shift from nomadism and shifting cultivation to more sedentary forms of livestock and crop production. Traditional practices of transhumance and shifting cultivation that allow land to rejuvenate naturally are being replaced by crop - livestock systems involving continuous cultivation. Sustaining the productivity of such a fragile ecosystem requires new and innovative management strategies.

The ILCA site is located at the ICRISAT Sahelian Centre (ISC) in Sadoré, Niger, which is in a rural area at a distance of about 30 km from Niamey. It is a self-contained, beautifully equipped, modern facility. The office and laboratory space for ILCA is tight, but an expansion is planned.

The research setting provides the opportunity to collaborate with crop and soil scientists representing various disciplines and expertise. Facilities available at ISC include approximately 220 ha of experimental plots, pasture and cultivated areas with crop residues for grazing trials, and facilities for in-pen and group feeding of animals. The Centre has basic plant and soil laboratory facilities available for assessing the feeding values of forages and conducting in-depth investigations into nutrient cycling.

6.4.2. Programmes

ILCA's programme emphasises the need to design and evaluate improved resource management technologies that increase the sustainability and stability of livestock production in these mixed farming systems. In 1983, ILCA defined the role of livestock in mixed farming systems, monitored the management and productivity of village herds, and conducted preliminary evaluations of feed supplements and animal traction techniques. The results of this research have been published in various reports and have provided important insights on the effects of drought on village-level livestock production. The programme was substantially modified and expanded in 1989 to include

interdisciplinary research on three major themes: economic modelling of livestock production in mixed farming systems, the agro-ecology of these systems, and livestock nutrition. The projects fall under the Small Ruminant Meat and Milk, Livestock Policy and Resource Use, and Animal Traction Thrusts.

Trials conducted at ISC are designed to address issues identified by on-farm research. Economic and ecological studies have been initiated in seven villages in Niger within three regions on a north-south gradient of demographic pressure and rainfall. This on-farm work solicits the active participation of producers through problem identification, research implementation and evaluation.

The economic component of the programme centres on the development of a comprehensive whole-farm model that incorporates the essential interactions between components of mixed farming systems. The interdisciplinary approach to this research targets key economic and biological interactions of the mixed farming system and appropriate research issues. The model may also serve as a tool for *ex ante* evaluation of new management techniques before their extension to producers, and provide useful information on the nature of tradeoffs between risk aversion and economic benefits in mixed farming systems.

Sustainability research focuses on the interactions between ruminants and soil productivity. The competition for crop residues among livestock, soil management, and household uses is being addressed. ILCA Niger is involved in collaborative research with NARS, ICRAF and ICRISAT to identify dual-purpose grain and forage legumes and browse species suitable to the production system, and to develop management systems that fully exploit the agronomic benefits and feeding value of legumes, leading to the enhanced productivity of crops and livestock. Improved management of indigenous feeds and supplements are being examined in order to develop more efficient and appropriate feeding practices especially for draft animals and sheep fattening.

6.4.3. Assessment

There are three ILCA international scientists stationed in Niamey. However, the Feed Resources Thrust includes the land resources specialist, who is stationed at Bamako. The team seems cohesive and members work well together. There are strong interactions between the thrusts. The projects and different experiments sometimes overlap each other. However, the activities which are taking place or planned for the future, show much more coherence than could be expected from the research protocols. The leadership at the site is good and is strengthened by strong support from ICRISAT. The Team Leader described how the programme is trying to fit into a strategic scheme of actions involving other organizations that interact with ILCA's Programme. The greatest concern for the Niger group is whether they have sufficient strength and critical mass of various disciplines to accomplish effective goals related to ILCA's programme.

ICRISAT provides the physical and administrative infrastructure for ILCA which pays for the services provided. The city of Niamey offers good housing, schooling and other facilities. There are many organisations in Niamey having programmes dealing with Sahelian problems, provide a range of opportunities for interactions with ILCA staff. The scientific inputs from the discipline divisions at HQ through site visits are very limited and are largely confined to written correspondence.

Linkages with ICRISAT are particularly strong. Support and collaboration in the fields of climatology, soil nutrient cycling, focussing on the alternative uses of crop residues for soil improvement and animal plant feeding, enhance both ILCA's and ICRISAT's programmes. Of all ILCA stations, ILCA Niger is best placed to carry out in-depth studies to evaluate varieties of crops for nutritive value of residues, due to the excellent collaboration between ILCA, ICRISAT, IITA and ICRAF. Niamey is also the best site to monitor sustainability issues in the semi-arid and arid zones.

The linkages with NARS need more time to develop. Niger has just recently restructured the "Institut Nationale de Recherches Agronomiques du Niger" (INRAN). INRAN would like to see all collaborative research formalized between institutes rather than between individual workers as happens at present. INRAN made it quite clear that ILCA should not be involved in extension work. ILCA also collaborates with the University of Niamey on the reproductive cycle of small ruminants.

The research programme at Niger is relatively new, and its actual impact on development of new methodologies, and through scientific publication has yet to materialize. The research is long term, but continuity seems assured. Nevertheless, the ILCA scientists should be encouraged to publish their results in refereed journals.

The Panel believes that the current research programme in Niger has great potential for impact, not only on production research, but also on the conservation of resources in this fragile environment.

6.4.4. Recommendations

The Panel believes that the economic modelling of crop/livestock production systems in the Sahel requires an increase in strategic research to develop a more solid base if it is to simulate the complex interactions between soils, crop production, crop residues, livestock production and socio-economic factors. If necessary, it could rely on the support from external consultants and advanced institutes where there are established modelling teams. Monitoring of the sustainability of (livestock) agriculture in the semi-arid and Sahelian zone should be one of the specific tasks of Niamey site.

Recommendation 6.3.

ILCA should concentrate its resources in cooperation with ICRISAT on crop - livestock research in the semi-arid zone at the ICRISAT Sahelian Centre ISC at Sadore in Niger.

ILCA should post the scientists responsible for pastoral trends and resource management, animal traction and the programme of Liaison Officer to Niamey. It should also seriously consider strengthening the laboratory analytical facilities in Niamey.

6.5. Subhumid - Mali

6.5.1. Setting

ILCA has only administrative facilities at Bamako. Research is conducted in cooperation with the Institut d' Economie Rurale (IER) at the Centre de Recherches Zootechniques, Sotuba and near Niono.

ILCA regards Bamako as a subhumid site but it really is in the wetter part of the semi-arid zone. At present, research is not given a high priority at Bamako. The ILCA office is mainly being used as: a Regional Liaison Office; an office of the Cattle Meat and Milk Network Coordinator; an office for the Biometrics and Computer Support Section; and a base for the Pastoral Trends Project.

6.5.2. Programmes

Research activities under the Cattle Milk and Meat Thrust have virtually stagnated, but are continued by the NARS. They are station-oriented. From 1989-91 ILCA and NARS conducted on-farm research in three production systems, focussing on milk production geared to supply the urban market of Bamako. Currently, ILCA is still supporting research at Sotuba.

The Pastoral Trends study in the semi-arid zone northern Mali is the most important research project based in Bamako. It comes under the Animal Feed Resources and Resource Use Thrust. The main objective of this research is to identify the major ecological processes that drive the dynamics of the soil-plant-animal components of this ecosystem, so as to elucidate past and predict likely future trends in system productivity. A second important objective is to develop methodologies of pastoral monitoring adapted to requirements and capabilities of the local NARS. A third objective is to develop a methodology for pastoral monitoring. Experiments are being monitored which aim at assessing the impact of grazing on the structure and productivity of Sahelian pastures. Remote sensing is being used as a tool for the monitoring work.

6.5.3. Assessment

The ILCA Programme Liaison Officer is the Acting Site Leader. His interventions are limited to administrative/coordination matters, and his scientific inputs to the two thrusts (Cattle Milk and Meat and Animal Feed Resources) in Mali are limited. The scientists in Mali are fairly isolated from HQ. The terms of reference of the Cattle Milk and Meat Network Coordinator and the Programme Liaison Officer are overlapping to a certain extent.

Disciplinary support from HQ is insufficient apart from some interaction in livestock policy in the past. The support for range management continues, but range management has a low priority within the overall ILCA strategy. The biometrician located in Bamako is enthusiastic and well qualified. It remains to be seen, however, how far his talents will be used in West Africa. The Panel believes it is unfortunate that the peri-urban dairy project being implemented at Bamako is not benefitting from ILCA's experience with similar research in other locations of the same AEZ.

The Panel also noted the following points: the Cattle Milk and Meat Network Coordinator is not fluent in French, which should be a requirement for this type of position; the facilities are more than adequate for the amount of science that is conducted in Mali; and though there is an ICRISAT research station, mainly dealing with sorghum breeding and agronomic evaluation, there is little interaction between the two IARCs.

NARS officials were highly critical of ILCA's fluctuating and declining involvement in Mali. Furthermore, the lack of continuity of ILCA research staff and the recent drastic cuts in ILCA research funds caused a great deal of disappointment. The research protocols have not been signed by both parties.

NARS expectations of the ILCA networks are very high. However, no projects have yet been funded under the Cattle Milk and Meat Network, which may worsen the relations with the NARS.

The impact of the Mali Programme can be summarized as follows:

- A large data bank on Sahelian trends has been established.
- An impressive list of publications has been developed from the ILCA Sahel studies. The work has strengthened the NARS and made them aware of the fragile economic, social and environmental issues concerning livestock production in the semi-arid zone. It also contributed to the methodology, development but this is a small contribution compared to the need for research to develop sustainable agricultural systems in the semi-arid zone.
- Training and information have been provided to the counterparts.

6.5.4. Recommendations

Recommendation 6.4.

ILCA Management should close its research site in Mali and consider concentrating ILCA research in Niamey.

6.6. Subhumid - Nigeria

6.6.1. Setting

The subhumid zone is subject to seasonal infestation by tsetse fly over about two-thirds of the area. However, the threat is decreasing as a result of rapid increases in population growth and crop intensification which has accelerated the cutting down of trees and contributed to tsetse control. Some farmers are starting to keep cattle and some pastoralists are settling and growing crops. In general, land use in the zone is not yet intense and is viewed as an area of high potential productivity.

Nigeria has the largest proportion of the subhumid area in West Africa, and also has a relatively strong NARS, which is particularly valuable in emulating research techniques and implementing innovations. The Kaduna, based Programme, although with its own offices, does have some work located on the premises of national institutions (e.g. at Mando Road and Idon Ranch). Activities are undertaken at seven different field sites.

6.6.2. Programmes

The primary objective of the research programme in the zone is to raise the income and welfare of livestock owners and increase the supply of high-quality proteins for consumers. This will be achieved through developing relevant innovations for adoption by farmers and developing research methodologies that can be used by NARS. Four thrusts are represented in the research activities of the Kaduna Programme:

1) Cattle, Milk and Meat Thrust. The comparative advantage that the subhumid zone is likely to possess with respect to milk production, has led to considerable emphasis on the peri-urban milk production system. ILCA studies have indicated that the indigenous breed of cattle (i.e. Bunaji) has the potential to be used in a peri-urban dairy system. On-station testing of a prototype peri-urban milk production system based on the Bunaji, involving recycling slurry and the use of fodder trees such as Leucaena, Gliricidia and Gmelina, appears technically sound. Other work has involved assessing seasonal variations in reproductive performance as a result of alleviating nutritional constraints. The fodder bank innovation, for which ILCA deserves major credit, has since 1986 been disseminated by the National Livestock Projects Division through a

World Bank funded project. The rate of adoption has been less than expected (i.e. almost 600 now compared with 2000 originally anticipated by 1990). Studies undertaken by ILCA have revealed why adoption has not occurred. In general the Panel believes that the fodder bank package holds bright prospects for having a positive economic and social impact in the subhumid zone.

- 2) Small Ruminant Meat and Milk Thrust. On-farm productivity of the West African Dwarf (WAD) goat has been found to be increased (e.g. postpartum weight up and kidding interval down) with the use of mini-fodder banks. Studies have indicated that goats need supplementary feeding in the wet season. Mini-fodder banks are likely to have beneficial economic and social impacts since small ruminants are widely distributed and many are owned by women.
- 3) Animal Feed Resources and Resource Use Thrust. Integrating cropping into the fodder bank system has been investigated to prevent takeover of the fodder bank by grasses, and to increase their appeal to agropastoralists (i.e. three years fodder and one year cropping) and crop cultivators (i.e. one year fodder and three years cropping). Since Stylosanthes hamata cv Verano is susceptible to anthracnose, research resources have been devoted to identifying other suitable legumes. Two promising ones have been identified (i.e. Chamaecrista rotundifolia cv Wynn and Centrosema pascuorum cv Cavalcade). Research has been done under the poor soil conditions on screening other forage species, including trees that are likely to be devoted to forage crops under practical farming conditions.
- 4) Animal Traction Thrust. Equipment for measuring work rates and energy use of oxen is being manufactured and distributed at cost to other organizations. The extensive inland valleys of the subhumid zone of West Africa have provided the focal point for practical field-level animal traction work, which is undertaken at Kufana. Use of animal traction earlier in the rainy season has effectively lengthened the growing season and opened up the possibility of double-cropping with rice. A recent study has indicated that the adoption of animal traction is likely to be uneven, since it appears to be positively associated with households' economic means, especially the ownership of oxen.

6.6.3. Assessment

Although two international scientists have recently been transferred and the agricultural economist position is vacant, the research programme does not appear to have suffered. Overall leadership is good and appreciated by staff, and the quality of the staff responsible for the work in the different thrusts is competent.

Efficiency could be improved by concentrating field research at fewer than the present seven sites. Current logistics are complex and costly. Apart from Zonkwa, living and working conditions are reasonably satisfactory. However, frequent electricity failures and the overcrowded office situation at Kaduna has stimulated the search to move to

another location. Some equipment such as microcomputers and vehicles also need replacing. Support staff expressed some dissatisfaction with salary and conditions.

Relationships with HQ were evaluated by professional staff as being good when dealing with Finance, the Library, and Training but as having problems when dealing with Administration (particularly Personnel), the Registry and Travel. Delays in dealing with forage samples sent to HQ has resulted in plans to set up a simple analytical laboratory in Kaduna.

Relationships with the NARS appear to have greatly improved since the Second EPR. The regional Technical Advisory Committee appears to be working well. NARS representatives, at a meeting with Panel members, made a number of positive points supporting ILCA activities. On the other hand, the Advisory Committee would like an earlier role in developing research programmes, rather than simply reacting to plans developed by ILCA.

6.6.4. Recommendations

ILCA should continue to seek to further improve relationships with NARS through: ensuring greater input from the NARS in the research formulation stage; having an annual field day; continuing to use Nigerian graduate associates; and developing joint research projects with NARS, particularly to complement areas in which ILCA has little expertise.

In collaboration with NLPD, ILCA should (possibly through the Alley Farming Network for Africa), organize training courses for extension staff in the subhumid zone on fodder/mini-bank management. These would be at Kaduna and would help in the dissemination and sustainability of the technology.

6.7. Humid - Nigeria

6.7.1. Setting

The Humid Zone Programme has its base at IITA in Ibadan, Nigeria, although this site does not strictly fit the humid zone. The objectives of the Programme are to improve animal productivity by improving animal nutrition through the introduction of forage and browse legumes integrated with crop production, and by introducing effective animal health interventions. The objectives are pursued through research both on station and on farm. Scientific staff comprise an agricultural economist, a forage agronomist, an animal scientist and a consultant. Support staff include eight Nigerian supervisory staff.

6.7.2. Programmes

Four thrusts are represented in the humid zone:

- 1) Small Ruminant Meat and Milk. Work includes: trials aiming to increase the productivity of small ruminants while improving soil fertility and crop production; agronomic studies on the productivity, nutritive value and management of indigenous browse species adapted to the acid soils of southeast Nigeria; research to define the role of alley farming; and studies to determine the effect of trypanosomiasis on nutrient utilization during pregnancy and lactation in the West African Dwarf sheep.
- 2) Animal Feed Resources. Projects in progress include: screening of accessions of herbaceous legumes for use in the cut-and-carry systems for cattle and small ruminants in the savannah; evaluation of the MPT species of Gliricidia, Cajanus, Acacia, Sesbania and Parkia for their forage potential and as possible replacements for Leucaena which is under the threat of the psyllid; and evaluation of the effects of different pruning regimes on dry-season fodder availability and on the mulch value of the prunings in native pastures within intensive feed gardens.
- 3) Cattle Milk and Meat. Preparations are in progress for the start of the Peri-urban Dairying Programme. Also in progress are evaluations of various grass/legume mixtures for suitability in the cattle stall feeding system, and screening of grass and legume species for shade tolerance under oil palms. A socio-economic study to describe existing cattle management systems, breeds present, cattle owners' objectives and the constraints they face within the derived savannah zone has been completed.
- 4) Livestock Policy Thrust. Socio-economic studies have been undertaken on the effect of land tenure on the adoption of alley farming technology. A project on land tenure and trees in West Africa is in progress.

6.7.3. Assessment

Recently, there has been a high turnover in scientific staff which has affected the continuity of the research programme. Action should be taken to improve staff retention through provision of better facilities and working and living conditions. The Team Leader spends rather too much time on administration due partly to a host of problems, especially shortage of staff housing, difficult communication with ILCA HQ, the need for frequent travel to Lagos, and partly to his management style of preferring individual consultation to staff meetings.

The Programme has an experimental area of about 30 ha within the IITA campus and has access to 29 ha at the Oyo State Ministry of Natural Resources Livestock Station at Fashiola (70 km north of Ibadan), where a small herd of N'Dama cattle is maintained

and agronomic trials are conducted. This land will be grossly inadequate when the Peri-Urban Dairying Programme begins.

There is limited disciplinary support from ILCA headquarters. This is partly a result of the matrix management system whereby decisions on approval and funding are made by the Thrust Council, which lacks a disciplinary representation except where a Division Head is also a Thrust Coordinator, and the protocol review process by disciplinary heads is informal.

Cooperation between ILCA's Ibadan team and the NARS has been good, including training of seven graduate associates for higher degrees. A Technical Advisory Committee of Nigerian and ILCA scientists plays a useful role in enhancing the collaboration.

So far, collaboration between ILCA and IITA in research has been on a scientist-to-scientist basis. The IITA Management is keen on cooperative work on crop/livestock integration, and feels such collaboration should be formalized.

The majority of farmers in the humid zone own small ruminants and, within families, a high proportion of the small ruminants are owned by women. The Humid Zone Programme has developed small ruminant health management (e.g. vaccination against peste des petits ruminants and nutrition (e.g. alley farming and feed gardens) packages which, if adopted, would improve small ruminant productivity and increase the incomes of smallholder farmers, especially women. Adoption of the health management package is low, apparently because the Government cannot deliver the health packages at a reasonable price. However, those who have adopted both packages are reported to be increasing their flock sizes.

Alley farming and intensive gardens (developed by the Humid Zone Programme) are being promoted by the NLPD, an agency of the federal government of Nigeria. Several hundred farmers have been given seeds or seedlings, and many have begun establishing small alley farms.

In 1989 AFNETA (Alley Farming Network for Africa) was established under the joint sponsorship of IITA, ILCA and ICRAF, and now involves 20 SSA countries. The Humid Zone Programme staff have made substantial contributions to the alley farming training manual which is in draft form.

6.7.4. Recommendations

Research on milk processing is important because it will contribute to self-reliance and gender equity. Milk products are often contaminated and there is much room for improvement. ILCA's work at Debre Zeit could be extended to West Africa through training of NARS scientists from that region. Furthermore, experience in milk

processing research at Debre Zeit should be used to explore the potential for improving the efficiency and the hygiene of milk and milk products in the humid zone.

Since direct livestock input into AFNETA is weak at the moment, the Panel suggests that ILCA develop collaborative research with the NARS that can be funded under AFNETA, thereby also potentially increasing ILCA's multiplier effect.

It is also suggested that the potential for some collaborative linkage between the African Feed Research Network and AFNETA should be explored to avoid duplication of effort and exploit any complementarities that may exist.

In June 1983, ILCA signed an agreement (with IITA) by which it gained access to various IITA facilities. Although the agreement envisaged the Humid Zone Programme would only last for a few years, the Programme is now expanding and will continue for many years to come.

Recommendation 6.5.

ILCA should approach IITA to review the 1983 ILCA/IITA Agreement and accommodate the current needs of ILCA's Humid Zone Programme either at IITA, Ibadan, or the proposed IITA sub-centre at Yaounde.

Recommendation 6.6.

Because of the continuing importance of small ruminants in the humid zone, ILCA should not do peri-urban dairying research at the expense of the small ruminant/alley farming work. Efforts should be made to ensure continuity of the animal scientist input to small ruminant work from the expert currently handling the Cattle Milk and Meat Thrust and/or through collaborative work with the NARS.

6.8. General Recommendations on Zonal Sites

The Panel observed many difficulties of ILCA teams working at zonal sites and recognizes the impossibility of providing equally good working conditions in all locations. The mechanisms of addressing the needs of ILCA teams at locations remote from HQ have been discussed with ILCA Management and it is recognized that the Research Operations Manager has a particular responsibility for this. His role replaces that proposed for the Director of Administration previously. Despite these arrangements, the Panel observed some problems that it regarded as unsatisfactory. Of particular note was the housing situation of the two international scientists housed outside IITA at Ibadan.

Recommendation 6.7.

ILCA Management should inspect working conditions at zonal sites and endeavour to provide a minimum adequate set of equipment and, as a highest priority, solve the serious outstanding housing issues.

Recommendation 6.8.

Adoption studies should continue and have the objectives of not only evaluating impact, but also helping to define priorities for further research and provide information that will assist in the dissemination of technology.

CHAPTER 7 - THRUSTS AND NETWORKS

7.1. Introduction

Table 7.1. shows the distribution of research resources by thrust according to the MTP and what was actually approved. The figures indicate that equitability between thrusts in terms of congruency between the plan and approved levels has been generally maintained up until the current year. According to the figures, the Animal Feed Resources and Trypanotolerance thrusts seem to have gained relative to the other thrusts. However, care must be taken in interpreting the figures due to periodic movement of projects from one thrust to another. Apart from the specific thrusts mentioned above, all thrusts received lower absolute levels of funding in the last two years because the actual total research resource level was lower than planned.

Table 7.1. Composition of Research Allocations by Thrust:
Medium-Term Plan and Approved

Item	1988	1989	1990	1991	1992	1993
Research budget (US \$ '000) Plan:	11,533	12,884	14,411	16,059	17,042	18,025
Approved:	11,533	12,556	13,016	13,201		
% Planned Breakdown by Thrust: ^{ab}						
Cattle Milk and Meat	26(22)	27(24)	28(28)	30(26)	30	30
Small Ruminant Meat and Milk	15(13)	20(17)	20(17)	20(16)	20	20
Animal Traction	17(18)	17(18)	18(16)	18(15)	18	18
Animal Feed Resources	22(23)	15(17)	13(14)	10(16)	10	10
Trypanotolerance	13(17)	12(14)	10(13)	9(16)	9	9
Livestock Policy and Resource Use	7(7)	9(10)	11(12)	13(11)	13	13

a. Figures in parentheses refer to approved budget. Other figures reflect those in the Medium-Term Plan.

b. The breakdowns exclude funds that are research support and non-project specific.

Source: Financial Controller's Position Paper, June 1991, and Medium-Term Plan.

Networks associated with ILCA are designed to improve the multiplier effect of ILCA's research through dissemination of results and in stimulating research within different NARS. Networks are of three types: research support, collaborative research support and informational. Apart from the African Trypanotolerant Livestock Network

(i.e. research support) and the African Livestock Analysis Network (ALPAN) (i.e. informational), all the networks are collaborative research support in character.

7.2. Cattle Milk and Meat Thrust

7.2.1. Goals and Themes

Cattle will continue to be the most important source of milk and meat in SSA for many decades to come. According to the draft of the Winrock study, cattle will account for 25% of red meat and the majority of milk supplies to the human population which is expected to increase from the current 500 million to 1.3 billion by the year 2025. Such increases in meat and milk will have to come from more animals or increased productivity per animal. The latter strategy is likely to be superior in order to reduce the chances of environmental degradation. Mixed crop - livestock systems offer the principal avenue for greater productivity. On the other hand, intensive commercial systems have the potential to rapidly increase milk and meat production but they depend heavily on availability of feed, veterinary inputs and organized marketing.

Therefore, the main objective of the Thrust in the medium term is to find solutions to the major constraints to increased cattle milk and meat production in the mixed crop - livestock smallholder farming systems of SSA.

Currently there are, in effect, six themes in the Cattle Milk and Meat Thrust. These are as follows:

- 1) Reproductive wastage and hygiene management which involves identification of major reproductive diseases and physiological problems, and the development of management practices that will improve reproductive performance.
- 2) Feeding and management systems which involves: development of methods that can be used by NARS in assessing local feed resources; the development of feed supplementation strategies using indigenous plants and fodder banks; reduction of calf mortality through feeding; and, developing year-round systems for feeding and management of dairy cattle.
- 3) The milk processing theme involves development of more efficient technologies for small-scale milk processing at the farm or village level, and training of rural smallholder farmers in milk production and processing through visits to the Debre Zeit station.
- 4) Economics of cattle production involves studies on milk consumption and marketing and providing assistance to governments in formulating milk production and marketing policies.

- 5) Breed evaluation and improvement involves helping NARS scientists in analysing data collected in their own cattle breeding programmes, and evaluating dairy cattle genotypes.
- 6) Up until the end of 1991, networks were conducted as the Eastern and Southern, and the Western and Central Cattle Research Networks. These have now been merged into the Cattle Research Network.

Peri-urban milk production systems have received increasing attention during recent years, although they do not appear in the MTP.

7.2.2. Sites

The Thrust has activities at five sites in addition to HQ, namely Debre Zeit, Mombasa, Kaduna, Ibadan and Bamako. All the specified sites outside Ethiopia have had, or plan to have, activities relating to peri-urban milk production.

7.2.3. Assessment

The Cattle Milk and Meat Thrust is well led. However, the Thrust is involved in a very wide range of activities. It has the least focus of any of the thrusts because the topic is so broad. Also, much of the work relating to feeding and forages could be included in the Animal Feed Resources and Resource Use Thrust or even in the Small Ruminant Milk and Meat Thrust.

In Ethiopia, thrust activities have involved substantial activities with reproductive wastage, economics of cattle production, breed characterization, peri-urban dairying, livestock information management systems, and nutrition (mainly feed evaluation), milk preservation and processing, and interaction with visiting scientists. Interaction with visiting scientists is important not only in terms of the contributions they make but also in extending the influence of ILCA's activities to the NARS.

On-station work has demonstrated that calf mortalities can be reduced significantly through improved feeding and management. Research on different aspects of these continue within the Nigerian NARS.

Work in agropastoralism has confirmed that heavy stocking and periodic drought destabilizes the balance between human population and cattle numbers, thereby contributing to environmental degeneration. In the AEZs where agropastoralists operate, pricing and marketing policies also are important in regulating the numbers of cattle.

Although the Eastern and Southern, and Western and Central Cattle Research Networks were quite successful, the Panel is concerned that the larger network will be

less effective than the two smaller and more focussed networks. So far, few projects have been funded in the Cattle Research Network. Also, coordination is inhibited with the Network Coordinator being based in Mali and the Thrust Coordinator being located in Debre Zeit.

7.2.4. Recommendations

Because of the close relationship between many diseases and management, including nutrition, especially under more intensive systems of production, the Panel suggests opportunities should be explored for collaborating with ILRAD and the NARS on work in these areas.

As discussed in Section 6.7.4., processing of milk products is a serious problem in the humid zone. Research in this field at Debre Zeit has been successful in developing appropriate technologies which could be tested more widely.

Recommendation 7.1.

Possibilities of extending work with reference to village-level milk processing techniques to other countries (e.g. Nigeria), possibly via follow-up activities with former trainees from those countries, should be explored.

7.3. Small Ruminant Meat and Milk Thrust

7.3.1. Goals and Themes

Sheep and goats provide as much as 30% of the meat and 16% of the milk consumed in SSA. Care of small ruminants is often in the hands of women. Small ruminants are usually kept under low-input management systems, as an adjunct to crop production. In the semi-arid zones, where 25% of the small ruminants are kept, they are used for both subsistence and income-earning purposes.

The long-term objective of the Thrust is to improve the sustained output and yields of small ruminant meat and milk in mixed crop - livestock farming systems. In the medium-term, ILCA is trying to develop solutions to constraints to increased small ruminant meat and milk production.

The Thrust has five research themes (i.e. economics of small ruminant production, genetic resource evaluation and breed improvements, forage production and feeding systems, reproductive wastage and health management, and management systems). The thrust is closely linked with the Small Ruminant Network.

7.3.2. Sites

The Thrust Coordinator is based in Mombasa while the Network Coordinator is based in Nairobi. The main ILCA-sponsored activities are located in Mombasa, Kaduna, Ibadan, Niamey, and Debre Berhan and Debre Zeit.

7.3.3. Assessment

Many of the thrust activities overlap with those of the Cattle Milk and Meat Thrust, the Animal Feed Resources and Resource Use Thrust, the Livestock Policy Thrust, and the Alley Farming Network for Africa (AFNETA) which is coordinated by IITA.

The themes within the Small Ruminant Thrust indicate the principal areas of research which ILCA is undertaking to improve productivity. The expected outputs, as outlined in the MTP, tend to be open ended. Diverse activities have been developed. Epidemiological studies have been undertaken on mortality, morbidity and reproductive wastage, which, in certain regions, have resulted in the development of a package of management techniques which can potentially improve productivity by 25%. The main activities under the forage production and feeding systems theme have involved work with mini-fodder banks, alley farming with MPT and feed gardens. An assessment of local breeds has started in collaboration with the NARS and the Network. Breed differences in parasite resistance have also been investigated. A start has been made with the modelling of the small ruminant farming systems.

When assessing the activities and output of the Thrust, the general conclusion is that the expected outputs of the various themes were too ambitious. There are a number of reasons for this lack of success. The "position" of small ruminants in the economy of the farming household is a critical determinant of whether there will be interest in adopting technologies designed to improve their productivity. In the drier areas of SSA small ruminants become more important, particularly in the economies of poorer households. This may provide incentives to adopt feed gardens, feeding of crop residues, mini-fodder banks, etc. For households owning cattle, such food resources are likely to be allocated to cattle. However, there is a complicating factor, specific to small ruminants, in that they are often owned by women. In such situations, even though small ruminants may not contribute much to the overall economy of the household, women may still be very interested in adopting improved technologies relating to small ruminants if they own them, can command the necessary resources (e.g. labour money, land) required for adopting the technology, and can personally reap the benefits. Therefore, assessing the relevancy of improved technologies relating to small ruminants is a complex process which requires much closer interaction between biological and social scientists than ILCA so far has provided.

The expected outputs delineated under the various themes may have been attained in some on-station trials, but adoption by farmers has been limited, although there appears to be some success with mini-fodder banks and intensive feed gardens. Factors contributing to the lack of success often include insufficient funding within the NARS, and deficiencies in applying the farming systems research approach. Component research that was undertaken does not always relate to the actual constraints in the farming system. A lack of qualified staff to undertake economic analysis and risk evaluation in socio-economic and epidemiological surveys has also reduced the expected outputs. The focus of the Thrust is too broad which inhibits impact.

Through collaborative research support activities under the Small Ruminant Network, research is being undertaken in many NARS, some of them being sponsored by ODA and EEC. The Network also publishes a newsletter and a research directory, runs training courses on small ruminant production and organizes regional meetings.

In Ibadan, some of the research work of ILCA has reached the dissemination stage, which was one of the reasons ILCA withdrew a substantial part of its small ruminant research from Nigeria. The Panel is concerned about this reduction in emphasis on small ruminant work in the humid zone, especially because the results could have a positive influence on the welfare of women. ILCA staff need to be sensitive to the gender issue.

7.3.4. Recommendations

The small ruminant meat and milk research requires greater focus. This can be achieved through some overall restructuring of research organization and leadership, as is discussed elsewhere (see Section 4.2).

The Panel also suggests, given the rather narrow biological orientation aspects of the research proposals approved by the Network, that the ILCA Thrust and Network Coordinators seek ways to strengthen the socio-economic component in the research proposals.

7.4. Animal Traction Thrust

7.4.1 Goals and Themes

Cattle constitute the most important draught animals and they provide traction in mixed crop - livestock systems, mainly in the Ethiopian highlands and in the semi-arid areas of SSA. The time for land preparation is very limited in both AEZs. Effective animal traction can help alleviate this constraint. The objective of the Animal Traction Thrust is to raise the sustained production and income of smallholders by improving and increasing their use of draught animal power. Animal traction has been considered

important because of its potential for improving the productivity and welfare of the SSA smallholder. Animals in farming systems have multiple purposes such as producing milk and meat and being "walking banks". In some areas (e.g. the Ethiopian highlands) animals, especially oxen, are valued for their contribution as traction animals, and many farm activities are oriented in such a way as to maximize the use of oxen for traction purposes during the planting season. ILCA has undertaken a range of research activities which examine the interaction between animal traction and other functions of livestock such as reproduction, milk output, meat production and feed conversion.

Cattle have traditionally been used for draught purposes in Ethiopia. Therefore, Ethiopia has been the focal point of ILCA's Animal Traction Thrust. Currently there are six themes in the thrust, namely: intensified and diversified use of draught animals; introduction of draught power into new areas; more appropriate use of feed resources for animal traction; alternative sources of draught power; preservation of nutrients in manure; and, collaborative animal traction research.

7.4.2. Sites

The animal traction work is currently conducted in the Highlands Programme at Debre Zeit and in the Subhumid Programme at Kaduna. Some of the Kaduna-based work will shortly be transferred to Niamey.

7.4.3. Assessment

Research efforts have concentrated on the following topics:

- 1) One of the first successes of the animal traction group, even before the Thrust was formally established, was the development and on-farm testing of a variety of oxen-drawn farm implements. This work in the then Highlands Programme developed a number of innovations to meet farmers' needs.
- 2) From the early ILCA farming systems surveys, it was concluded that a major problem of the highland farmer is the condition of the draught animals after the dry season. Trials have been conducted to assess the effect of dietary supplements on oxen work performance, including the effect of body condition and age on fattening of draught oxen fed on teff straw in Ethiopia and, in Mali, the effect of feed supplementation and physical characteristics of oxen.
- 3) There has been development of agronomic packages related to introduction of animal traction. The package being developed for enhanced productivity on Vertisols consists of the broadbed maker, new cropping systems, new crop varieties, changes in crop husbandry, fertilizer application, and various pest and disease control measures.

- 4) Work has been undertaken on cow traction to help overcome the usual shortage of draught oxen at the onset of the rainy season. Although the first on-farm trials at Debre Zeit appeared to be promising, cow traction technology was not adopted by the Ethiopian highland farmers. There were several reasons for this, which has triggered new research on a number of topics.
- 5) Work is being undertaken on the energy balance of draught bulls, cows and calves. Energy consumption of draught animals during different types of activities is being measured at Holetta and Kaduna.
- 6) Work is under way on introducing animal traction into other ecosystems. Only 10-15% of the SSA farmers use draught animals. Work is being implemented on the potential for cattle traction in the inland valley (*fadama*) agriculture in the subhumid zone of Nigeria.

ILCA has been involved with the West African Animal Traction Network (WAATN) since its inception in 1985. In Ethiopia, ILCA organized the Joint Vertisol Project which assembled several Ethiopian and international institutes in a local network (see section 6.2.3.). The WAATN received a pan-African dimension in the meeting of 1990 in Kano where 19 African countries were represented. As a result of this meeting the EEC granted funds in trust for implementing three research projects under the Animal Traction Network. An Animal Traction Network for Eastern and Southern Africa (ATNESA) was set up in 1991. The first meeting, in which ILCA will participate, will be held in early 1992.

The Team Leader of the Animal Traction Thrust is the Assistant to the Director General, Director of Donor and Board Secretariat, at Addis Ababa, and therefore cannot be engaged in the thrust work on a full-time basis. The Animal Traction Thrust has a clear focus and is well coordinated. Animal traction research cannot be conducted in isolation. Feed quality and quantity are dependent on land qualities. Animal physiology and health status are of vital importance for draught power evaluation. Also, agricultural engineers have a strong input in developing agricultural implements adapted to the great diversity of working circumstances in SSA. The Animal Traction Thrust has a number of achievements, some of which date from the Highlands Programme that predated the current organization of research. However, continued research and adaption is following up these early achievements in the Ethiopian highlands and new strategic research activities are being rigorously pursued in Ethiopia and West Africa. The extension of animal traction work to the latter area is strongly supported by the Panel.

7.4.4. Recommendations

Draught animals can be used for many purposes. The Panel suggests use of draught animals for purposes other than just ploughing, should be examined (e.g. for weeding, transport, milling, logging, water lifting, threshing, etc.).

7.5. Animal Feed Resources and Resource Use Thrust

7.5.1. Goals and Themes

The objective of the Thrust is to develop feed technologies that use herbaceous forage legumes, leguminous fodder trees and agro-industrial byproducts to supplement natural pastures and food crop residues. The goal is to achieve higher and sustainable levels of meat and milk production. The objective is pursued under seven themes:

- 1) Services and Resource Assessment. The stated objective of the theme is to identify and develop adapted forage feeds for improved smallholder/agropastoral livestock production. One category of activities within the theme comprises those provided by the support facilities and services including the genebank, the soils and plant nutrition, and the nutrition laboratories at headquarters and the genebank Herbage Seed Unit at Debre Zeit. Another category of activities comprises research to determine the potentials and limitations of feed resources. These activities have been described in Section 5.2.
- 2) Feed Resources Evaluation. The theme seeks to evaluate new feed resources for use in smallholder farming. Studies in progress or proposed include rhizobium studies on forage legumes; evaluation of MPT germplasm, evaluation of grass species; forage legume germplasm evaluation in the subhumid zone; and forage legume nutrition.
- 3) Multi-Purpose Trees. The objective of work under this theme is to identify and develop adapted MPTs, both indigenous and introduced, to improve livestock nutrition and soil fertility for improved livestock production. The objective is being pursued by evaluating MPTs in several ecological zones of SSA through five projects, namely: agronomic evaluation of MPTs; nutritional value of MPT germplasm; nutrient and water use studies in the soils of coastal subhumid Kenya; and, evaluation of MPT germplasm and MPTs in intensive feed gardens.
- 4) Legumes in Mixed Farming Systems. The objective of the theme is to improve use of forage resources for enhancing livestock nutrition and soil fertility, in conjunction with other resources such as crop residues, agro-industrial byproducts and dry-season natural pasture residues. The projects in progress or proposed include nutrient cycling and resource competition in crop - livestock systems, and the potential of forage legumes in soil surface management for sustainable crop and livestock production.

5) Network Coordination. Activities under the theme aim to strengthen national research programmes by enlarging the critical mass of scientific manpower in a collaborative and well coordinated manner to address feed supply problems, through research on forages. The objective is to be achieved through training, collaborative planning and implementation of research, scientific meetings and information dissemination (newsletters and library services). Between 1986 and 1989 the Thrust coordinated the Pasture Network for Eastern and Southern Africa (PANESA) and the African Research Network for Agricultural Byproducts (ARNAB). During 1989 the Thrust collaborated with CIAT/IEMVT in the establishment of the West and Central African Forage Network (WECAFNET). The three networks merged in March 1991 to form the African Feed Resources Network (AFRNET), which is now coordinated by the Thrust.

6) Range Trends. The objective of the theme is to establish a system and methodology for use by NARS with which to measure long-term trends in the productivity and management of range resources in the Sahel. This will involve the development of monitoring systems through a regional Sahelian monitoring network and will employ remote-sensing techniques and modelling. On-going work in Mali and other Sahelian countries concerns "trends in range resources productivity and management in the Sahel". The Sahelian Pastoral Network was established in 1989, but has remained relatively inactive because of a lack of funding.

7) Semi-Arid Livestock. The objective of the theme is to improve the stability, sustainability and mean level productivity of the Sahelian mixed farming systems by improving the role of livestock. Research projects in progress include modelling crop - livestock production systems in the Sahel; portfolio choices of crop/livestock producers in the Sahel; nutrient cycling by manure in the Sahel; and crop residue feed resources in the Sahel.

7.5.2. Sites

The Animal Feed Resources and Resource Use Thrust is represented at ILCA HQ and zonal sites including the Ethiopian highlands, Mombasa, Ibadan, Kaduna, Bamako and Niamey.

7.5.3. Assessment

Due to high staff turnover, the Thrust has had three changes of leadership since 1986 -- a factor that has not contributed to effective leadership. Coordination of thrust activities between zonal sites appears to be less than satisfactory. Deficiencies in experimental design and methodology in on-farm alley farming trials in humid Nigeria (see Section 6.7.) and subhumid Mombasa (see Section 6.3.) are indicative of inadequate professional back-stopping from HQ.

Most of the projects in the Thrust are applied in nature and of acceptable scientific quality. There are, however, problems in the design of on-farm trials (referred to and suggestions for their resolution given in Section 6.7.). The quality of work in the Forage Agronomy, Soil Science and Plant Nutrition, and Forage Genetic Resources Sections has been discussed in Section 5.3. Thrust activities in subhumid Kenya only started in 1988, and therefore results to date are limited. In humid Nigeria, alley farming research, which has been going on since 1982, appears to be losing momentum, partly as a result of changes in research staff. The formation of a joint ILCA/IITA task force to assess progress and determine new research priorities is, therefore, timely. Research on range trends, conducted in subhumid Mali, has resulted in the establishment of a large data bank and many papers have been published. Work on crop - livestock systems, nutrient cycling and crop residue feed resources in semi-arid Niger is yet to yield conclusive results.

There is considerable overlap in the work of the Animal Feed Resources and Resource Use, Cattle Milk and Meat and Small Ruminant Meat and Milk thrusts. Evidence of specific criteria for locating projects in particular thrusts often appear obscure. At the same time, the overlapping makes an objective assessment of thrust performance difficult. The Panel suggests that ILCA makes the criteria for the assignment of projects in thrusts more transparent.

An assessment of the impact of the activities of the Forage Genetic Resources Section is given in Section 5.3., and of the Thrust activities in humid Nigeria (including alley farming and AFNETA) in Section 6.7. The benefits of the fodder banks in increasing both animal production and crop yields are acknowledged by cattle owners and cultivators in subhumid Nigeria, some of whom have adopted the package. Efforts are being made to find alternatives to Stylosanthes hamata, which is susceptible to anthracnose.

Multi-purpose trees have considerable potential in sustainable mixed crop - livestock production systems -- they provide high-quality fodder for livestock, fertilizer in the form of mulch, fuel wood, poles and building timbers, shade and shelter from wind. They curb soil erosion, conserve soil moisture and build-up soil fertility. Compared with herbaceous species, MPTs are more persistent, give higher forage yields, are more tolerant of mismanagement, and are better able to retain high-quality forage under stress conditions. The Leucaena leucocephala-based alley farming and intensive gardens packages have been accepted to some extent in humid Nigeria (see Section 6.7.). The Panel supports the current emphasis on work to identify MPT germplasm for alley farming in the subhumid zone. Work to identify alternatives to MPT material currently in use or recommended for use (e.g. Leucaena leucocephala in the humid zone and Sesbania sesban in middle- to higher-altitude areas in SSA) has the potential for increasing the sustainability of the MPT-based technology.

7.6. Trypanotolerance Thrust

7.6.1. Goals and Themes

The tsetse-infested regions of Africa cover approximately 10 million km² and involve 37 countries. A unique characteristic of some African breeds of cattle, sheep and goats is their ability to survive and produce in tsetse-infested areas. These animals utilize the trypanotolerance phenomenon which developed through natural selection.

The objective of the Thrust is to contribute to improved livestock in tsetse-infested Africa through a better understanding of the factors affecting the performance of trypanotolerant animals and the effectiveness of trypanosomiasis control measures.

To help in achieving this objective, the African Trypanotolerant Livestock Network was jointly established with ILRAD in 1983 in different trypanosomiasis risk situations, mainly in West Africa. Research in this Network covers many aspects of trypanotolerance and trypanosomiasis which could not be done in one or very few research stations. Through the Network, research stations with different natural tsetse challenges, breeds of cattle, control methods etc. can be involved. Initially, the objectives of the Thrust were to establish baseline values for assessing levels of animal health and production in the different situations. Now, the research programme is focussed on fewer sites.

The research is currently organized into the following themes:

- 1) Trypanosomiasis epidemiology, including: estimates of tsetse challenge to evaluate its possible impact on plans for increasing livestock production; diagnosis of trypanosomiasis; factors affecting susceptibility; and, interactions with other diseases.
- 2) Effects of trypanosomiasis on animal performance, the reproductive cycle, and milk extraction.
- 3) Identification of trypanotolerance traits and their linkages with animal performance.
- 4) Definition of selection criteria for trypanotolerance, and estimation of phenotypic and genetic variances of, and covariance between, trypanotolerance and production traits.
- 5) Evaluating the potential of marker gene identification as an additional tool for the identification and use of more trypanotolerant animals (with ILRAD).

- 6) Biological and economic evaluation of the effects of tsetse control measures on livestock productivity.

7.6.2. Sites

Through its Network the Thrust works in a number of sites, including NARS in Côte d'Ivoire, Ethiopia, Gabon, The Gambia, Kenya, Senegal and Zaire.

7.6.3. Assessment

The present combination of Thrust and Network Coordinator in one person has worked very well, because the Network is the key operational component of the Thrust. Other positive aspects are that only two thrust leaders have been employed in the job and their quality was good. There is no overlap with other thrusts but the Thrust receives strong inputs from the disciplinary divisions (e.g. Livestock Economics and Animal Science). Factors that have had a favourable influence on the scientific quality of the Thrust have included: standardized research protocols have been used in all the involved countries; research has been strongly focussed; work has been undertaken in a limited number of countries; and, a good infrastructure exists at ITC in The Gambia.

When the anticipated outputs are compared with those projected in the MTP, the following points on achievements can be made:

- 1) Trypanotolerance. Health and productivity parameters for trypanotolerant and susceptible cattle under different tsetse challenges have been established, but for sheep and goats these data are still being gathered. Animal production parameters under low challenge (due to control methods) have yet to be examined. Breed differences in trypanotolerance and associated performance has been quantified for N'Dama cattle, while work is under way with respect to other cattle breeds and small ruminants. The importance of other anaemia-producing pathogens and their interaction with trypanosomiasis in cattle under field conditions is currently under way.
- 2) Genetics of trypanotolerance. Selection programmes based on highly inheritable trypanotolerance traits have been precisely assessed. A new method, developed at ILRAD, to detect trypanosomiasis antigens (the so-called antigen ELISA) has been important as a selection criterion. Whether the major histocompatibility complex can play a role in the selection programme requires further assessment.
- 3) Biological and economic evaluation of control measures. Effective control measures have been applied by NARS, resulting in increases in the productivity of trypanotolerant, and to some extent non-tolerant cattle, in different production systems. Nutritional interventions to improve overall productivity have also been tested, but these require further evaluation and adaptation.

When evaluating future allocation of research resources to this Thrust, the following points should be borne in mind:

- 1) There are few trypanotolerant cattle (8-10 million), compared with the overall cattle population ($\pm$ 180 million). The number of trypanotolerant small ruminants is 32 million versus a total number of 220 million in SSA. The subhumid and humid zone, however, has the greatest potential for expansion with $\pm$ 30 million cattle.
- 2) Although milk extraction from N'Dama cattle for human consumption is much higher than earlier thought, it is by no means sufficient to meet the growing demands of urban populations.
- 3) Effective tsetse control methods will improve the possibility of using trypanosomiasis-susceptible cattle in former tsetse-infested areas or in low-challenge areas. However, other diseases such as dermatophilosis will then start to have an influence. Zebu and European breeds are extremely susceptible to this disease, but N'Dama have a high degree of tolerance.

7.6.4. Recommendations

Given their productivity, the Thrust and Network should retain their integrity in any re-structuring of ILCA's programmes. The Panel also notes that the expected outputs as laid down in the MTP are realistic and should continue to be pursued.

The Panel noted that some of the research has also been done on non-trypanotolerant cattle. The Thrust could usefully extend this research to a high-potential production area (e.g. Zimbabwe) where the tsetse challenge has been greatly reduced by different methods. After ILRAD has assessed the validity of the presence of trypanosomal antigen in areas declared free of tsetse flies, the Panel suggests that the Thrust should evaluate the resulting cattle productivity. The Panel also suggests that it might be useful for ILCA to evaluate trypanotolerance in game animals.

Recommendation 7.2.

As resources allow, the Thrust should look for trypanotolerant traits in other breeds of cattle in Western, Eastern and Southern Africa and also extend its research on trypanotolerance to small ruminants.

7.7. Livestock Policy Thrust

7.7.1. Goals and Themes

The objective of the Thrust is to assist national efforts in improving the policies affecting the livestock sector. Until recently, work in the resource use area was also covered under this Thrust. However, research activities with reference to this have recently been transferred to the renamed Animal Feed Resources and Resource Use Thrust where they are discussed (see Section 7.5.). The goal of the Thrust is pursued under two major themes, namely policy research and policy services.

The objective of the Policy Research Thrust is to undertake research on relationships in key policy areas and, by doing so, assist the evolution of more appropriate livestock policies in Africa. Research activities, relating to this theme, have been undertaken in the following areas: effects of government policies on the use of inputs and technology adoption by farmers, and on the sustainability of mixed farming in marginal areas; role of credit in technology adoption by livestock producers; effects of milk and meat pricing policies on production by livestock producers; relationship between land tenure and other factors affecting technology adoption (e.g. alley farming); social and economic factors affecting the demand for livestock products (e.g. dairy products); and, financing livestock services.

The underlying objective of the policy service theme is to assist in the evolution of more appropriate livestock policies in Africa by providing information and training services to policy makers and analysts. Activities under this theme have included the following: making substantial contributions to the draft of a book on crop - livestock interactions in SSA; producing a bio-economic herd simulation model designed to analyze the technical, economic and financial effects of interventions, particularly supplementary feeds and forages, through changes in herd productivity; providing a substantial input into a two-volume ILCA published manual on livestock systems research; and, production of a handbook of African livestock statistics. Production of the manual and the handbook were both recommended by the Second EPR.

Additional activities related to the policy services theme involving substantial collaboration with the NARS, include continuing the African Livestock Policy Analysis Network (ALPAN), which was established in 1985, and holding regular training courses on livestock policy analysis. Finally, a symposium was held in 1990 on dairy marketing, consumption and demand for beef and dairy products.

7.7.2. Sites

Most of the activities relating to the Policy Thrust have been undertaken at HQ. However, some individual research projects have been undertaken at cost centres away

from HQ because they are location specific and can be better executed by individuals who are not located at HQ.

7.7.3. Assessment

There has recently been a large turnover of staff; the three staff who departed recently include the Head of the Livestock Economics Division who was also the substantive Head of the Livestock Policy Thrust. One of the two staff currently associated with the Thrust at HQ is providing the thrust coordinating role on an acting basis, pending the appointment of a new Division Head. Although the acting leadership of the Thrust is competent, this inevitably reduces the research productivity of the individual concerned, while the lack of a substantive head is likely to reduce the authority and influence of the Thrust. Apparently, the Centre is having difficulty recruiting a suitable Division Head.

Outputs of the Thrust have included three major books/manuals.

- 1) The draft of the book on crop - livestock interactions adds to the state of understanding about the dynamics of the process. It concludes that changed crop - livestock interactions are unlikely to have a major impact on productivity, unless they are associated with exogenous technical changes.
- 2) The handbook on African livestock statistics is likely to go a long way in overcoming the lack of data available for effective livestock policy analysis. It is too early to assess the impact of the handbook, since it was only published in October 1991.
- 3) The livestock systems research manual, the production of which was coordinated by staff associated with the Livestock Policy Thrust, was published in 1990. Volume 1, which is the bigger volume, contains a description and diagnosis of livestock production systems, while volume 2 is devoted to livestock on-farm trials. The first volume of the manual, in particular, reflects the way in which ILCA undertook the descriptive and diagnostic work, rather than what they would now advocate should be done at the start of new research programmes. In a sense, it is unfortunate that the first volume, in particular, was published in a form that implies "how to do it" rather than as a record of how ILCA did it at a time when short-cut methods such as rapid rural appraisal were still in their infancy. Also in many respects, volume 2 is still weak and does not reflect the continuing learning cycle that ILCA scientists are going through in the designing and testing of livestock strategies. Furthermore, it contains little with reference to undertaking work relating to issues of impact, adoption and sustainability.

With reference to other activities, the bio-economic herd simulation model was officially released in 1990 and, to date, has been officially distributed to about 70 individuals in NARS and high-income countries. The potential impact of this model is

considerable, especially in helping scientists in the ex ante evaluation of proposed technological innovations both from a technical and an economic perspective.

During the last five years activities of ALPAN have resulted in the production of 10 Newsletters, written in both English and French. ALPAN publications have a mailing list of over 1000 members, 80% of whom are located in Africa, with 30% being French speakers and nearly 60% being in government service. Somewhat surprisingly, of those on the mailing list whose discipline is known, only about 40% are social scientists. The Panel believes the Network serves a useful forum for those interested in matters relating to policy formulation, analysis and execution with respect to livestock research and development in Africa.

Finally, the Livestock Policy Analysis Training Course has been offered annually for the last six years, alternately in French and English. One hundred and sixteen participants from 34 countries have attended the course. A draft course manual has been produced which will shortly be published.

In checking the expected outputs of the Livestock Policy Thrust (as delineated in the MTP) with the actual outputs, it appears that those listed under the policy services theme have in general been fulfilled. With reference to the policy research theme, better data-collection and analysis methodologies for generating policy-relevant information still need to be addressed.

Finally, in the light of ILCA plans to develop a new MTP in the near future, it is timely that a small workshop will shortly be held. The theme will concern issues and priorities for livestock policy research, and be useful in planning future Livestock Policy Thrust activities, including making decisions such as whether the livestock statistical handbook should be updated.

7.7.4. Recommendations

It is suggested that staff associated with the Livestock Policy Thrust should play a leading role in drawing up the next MTP through ensuring that an economic interpretation plays an important role in determining research priorities. For example, the recent TAC/CGIAR move to advocating self-reliance means that, potential comparative advantage should be an important criterion in evaluating the allocation of research resources.

It is also suggested that ALPAN should be transformed from being an informational network to a collaborative research support network. The Panel supports the proposal of staff within the Livestock Policy Thrust that collaborative research should be encouraged through identifying funds for supporting research of selected individuals from the Livestock Policy Analysis Training Course, when they return to their national positions. Results from such research could be published in journals or as ALPAN

papers. Such an initiative could potentially be important in developing well informed policy makers and analysts, one of the expected outputs of the current MTP. The Panel suggests that one area that should receive specific attention, because of current concerns with sustainability and the recommendation of TAC after the last EPR, should be livestock policy issues in the arid ecological zone.

The Panel endorses the proposal of the second EPR that efforts are made to bring about a more formal collaborative research relationship between ILCA and IFPRI. The ideal solution to creating a symbiotic relationship would be to have an IFPRI staff member posted at ILCA HQ. The impending visit of the DG-designate of IFPRI should help in cementing the relationship between the two centres.

Recommendation 7.3.

A revised edition of the Livestock Systems Research Manual should be produced.

This recommendation is made because of the importance of the farming systems approach in the work of ILCA, and the fact that it is viewed as a lead institution with respect to livestock systems research. The Panel suggests the revised version (to be coordinated by the Livestock Policy Thrust) could usefully be based on an iterative approach involving recent and future experience of ILCA and other institutions. The Panel believes interaction between the various ILCA sites is required on an annual basis, because currently there are differences in the approach being used. Specific areas deserving emphasis are the streamlining of the descriptive/diagnostic stage, more emphasis on the design and testing stages, and some consideration of sustainability, and impact, not only as a measure of adoption but also as a means of feeding back ideas for future research.

CHAPTER 8 - SUSTAINABILITY IN ILCA'S AGRO-ECOLOGICAL REGIONS

8.1. Sustainability

The definition of sustainability used by TAC is the successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural resources. Sustainability can be viewed from several angles. ILCA is dealing with sustainability of production systems in SSA, which entails three strongly interlinked major components (biological, physical and socio-economic).

ILCA's motives for giving priorities to certain areas in SSA are influenced by a number of factors including: trying to work in areas representative of its physical mandate area, need for research, payoff, donors, and environmental concerns. The resource endowment and physical setting of an area are major determinants of the biological and socio-economic milieu. The physical environment determines many of the major constraints of production systems which may then be reflected in the need for various types of research, likely payoff and environmental stability. A logical way to assess ILCA's focus on sustainability in its research programmes is to stratify the research sites on the basis of AEZs. Next, an evaluation can be made of how ILCA's research activities meet the needs of sustainable production systems, and of livestock in particular, in each of these AEZs.

8.2. Strategic Choice of Ecologies

8.2.1. Agro-ecological zoning in SSA

At the International Centres Week in 1991, TAC presented a paper which reviewed the CGIAR priorities and strategies. A map of the regional AEZs was produced as a stratification framework. The methodology was adopted from FAO, and is largely based on delineation of major climatic zones. In order to keep things simple, TAC distinguished at the highest level of aggregation nine AEZs, based on moisture zones (length of growing period - LGP) and thermal zones (TZ). TAC noted however, that socio-economic data were not available on a true AEZ basis, making it necessary to reconcile AEZ and political boundaries. This was also unavoidable in the present sub-regional AEZ analysis. The objective of this section is to review the distribution and relevance of ILCA's programmes in the AEZs of SSA.

For the purpose of stratifying ILCA's zonal site programmes, the TAC map has been used as a baseline, with a few modifications:

- 1) The boundary between LGP zones follows actual LGP lines; and

Table 8.1. ILCA's Representation in Major Agro-ecological Zones of sub-Saharan Africa

Major AEZ	1	2	3	4	5	6	7
Thermal Zone (TZ)	Warm	Warm	Warm	Warm	Cool	Cool	Cool – Cold
LGP Zone	LGP < 75	75 < LGP < 180	180 < LGP < 270	LGP > 270	180 < LGP < 270	75 < LGP < 180	75 < LGP < 180
Definition	Warm arid tropics	Warm semi-arid tropics	Warm subhumid tropics	Warm humid tropics	Cool subhumid tropics	Cool semi-arid tropics	Cold semi-arid tropics
Sub-AEZ	Arenosol	Lixisol Arenosol	Lixisol Ferralsol	Acrisol Ferralsol	Nitisol/Vertisol	Vertisol	Cambisol
Representative Sites		Bamako Bobo* Niamey Niono@ Gaborone*	Kaduna Harare* Lusaka* Kampala*	Yaounde*	Addis Ababa Holetta Nairobi	Debre Zeit	Debre Berhan
Atypical Sites	Arero (Calcisol)	Mombasa (Calcisol)	Ibadan (Acrisol)				

KEY TO THE SOIL ASSOCIATIONS

FAO/UNESCO		USDA Soil Taxonomy
Soil Group	Association	
Acrisols	Acrisols, Alisols, Plinthosols	Ultisols, pp. ^{1/}
Arenosols		Psamments, pp.
Calcisols	Calcisols, Cambisols, Luvisols	Calcorthids, pp.
Cambisols		Tropepts
Ferralsols	Nitisols, Andosols	Oxisols
Lixisols		Alfisols, pp.
Nitisols		Paleudults/alfs, pp.
Vertisols		Paleustults/alfs, pp.
		Vertisols

^{1/} pp. = pro parte, i.e., the two terms correspond only in part.

LEGEND TO THERMAL ZONES (TZ):

- Tropics = all months with monthly mean temperatures, corrected to sea level, above 18° C.
- Warm = 24-hr mean (daily temperature (° C) regime during the growing period more than 20°.
- Cool = 24-hr mean temperature (° C) regime during the growing period between 5-20° C.
- Cold = 24-hr mean temperature (° C) regime during the growing period less than 5° C.

STATUS OF THE STATIONS

Kaduna etc.: operational

@: recently closed

*: possible future sites for ILCA research

- 2) The physical agro-ecological zoning has been refined by overlying the LGP map with the soils map of SSA.

8.2.2. ILCA's Programmes by AEZ

The importance of AEZs for ILCA depends on the type of research. Some of the ILCA research is non-site-specific, such as genebank activities, and can be conducted wherever it is most convenient. Other research such as the Vertisol Project is very site specific and has to be conducted in a representative Vertisol area, under representative agro-climatic conditions, and then extended through multi-site testing, complemented by a modelling approach to facilitate the interpolation and extrapolation of the results. Most of ILCA research is site specific and should therefore be concentrated in areas with high livestock populations, where important livestock problems occur and where people can benefit from the research results.

In its 1987 Strategy and Long-term Plan, ILCA chose to concentrate short-term efforts in the semi-arid, subhumid, humid and highland zones, where the chances of achieving substantial increases in food production are greatest. This was implemented by distributing its resources over the research sites as shown in Table 8.1.

8.2.2.1. Warm Arid Tropics

The arid zone, which accounts for 30 % of the SSA Tropical Livestock Units (TRLUs) and covers 36% of SSA, is currently not included in the ILCA programme. ILCA's reasons for this are:

- 1) The low potential and the declining share of SSA's human population in this zone;
- 2) The hypothesis that pastoralism will be gradually absorbed by surrounding sedentary land-use systems and that, on improving these systems, the task for the Sahel will be indirectly accomplished, particularly by reducing the livestock and human pressure;
- 3) Difficulty in identifying technologies that would promise substantial improvement of pastorals systems; and
- 4) Low payoff, and therefore scarce available resources are diverted to those areas where the potential for increased output is higher.

TAC reluctantly agreed with this choice on the understanding that work on technical problems be scaled down, whereas work on policy issues in this zone be continued if not strengthened. TAC expressed its concern about the sustainability of this fragile ecosystem and urged ILCA to monitor closely the working hypothesis mentioned above.

At present ILCA has restricted work in the warm arid tropical belt. However, the Panel could not find much evidence of ILCA's formal concern for warm arid tropics in the field of policy issues. Nevertheless, a lot of ad-hoc information is being produced by NGOs, international organizations such as FAO, and networks (ALPAN), etc. ILCA should become a focal point, where all this information is collected systematically and analyzed using a geographic information system (GIS) for further interpretation.

The Panel suggests ILCA takes the following points into consideration:

- 1) If ILCA wants to implement its concern for sustainable livestock production in SSA, it should certainly work in zones where large livestock numbers may be contributing to degradation of the ecosystem. In view of the acute environmental problems in the warm arid tropics (desertification), and the high cattle populations, the Panel suggests ILCA reconsider the strategic option of not addressing this zone.
- 2) Niamey might be a viable option for leading livestock research in this zone. ILCA's representation at Niamey could be expanded to make a team which could tackle the problems of the Arenosols and the Lixisols, which are the two major soil associations in the arid and semi-arid warm tropical zone.
- 3) From Section 6.5. there is plenty of evidence that argues against maintaining an ILCA presence in Bamako. From an ecological viewpoint, the Bamako site overlaps with Niamey. Both sites represent the semi-arid zone, Niamey the drier part with a LGP of 91 days and Bamako the wetter part, with a LGP of 137 days. It should be noted that in previous ILCA classifications, Bamako has always been classified as the subhumid zone.

Another argument for a site in Niger is the great LGP gradient from north to south. It is suggested that, pooling ILCA's land resources effort at Niamey will provide a critical mass, enabling it to address sustainability issues of crop - livestock systems in the warm arid and semi-arid tropics of West - Africa. ICRISAT at Niamey is planning to install a GIS and would welcome an input from ILCA. Also the opportunity to cooperate with AGRHYMET could be very fruitful. (See Chapter 6.4.)

8.2.2.2. Other agroecological zones

The highland and subhumid zones are currently covered by ILCA because of their high livestock populations (respectively 17 and 20% of the SSA TRLUs) and a high potential for livestock feed production. The humid zone contains only 6% of SSA TRLUs, but represents enormous potential provided some major constraints for livestock development can be overcome (trypanosomiasis). On the other hand, the existing tropical rain forest over much of the area cannot be overlooked as an important natural resource. From a global viewpoint the conservation of this resource has a high priority. The semi-arid zone with 27% of the TRLU in SSA is included in ILCA's existing

priorities because it has a greater potential for success than the arid zone. Though the need for research is less acute in some of these areas compared to the arid zone, the likelihood for a quick payoff is higher in most cases.

In order to assess the validity of the location of the ILCA research sites on an AEZ basis, Table 3.3 (Chapter 3) has been constructed to show some comparisons between agro-ecological regions, on the basis of data such as livestock numbers, human populations, etc. Since these types of data are only available on a country basis, countries were grouped to fit closely the lines of the AEZs; as shown in Fig. 8.1. and Appendix V. ILCA's agro-ecological regions, as defined here, are thus an agglomeration of countries which approximate a comparable AEZ. The livestock densities in the individual countries of an agro-ecological region can be very different.

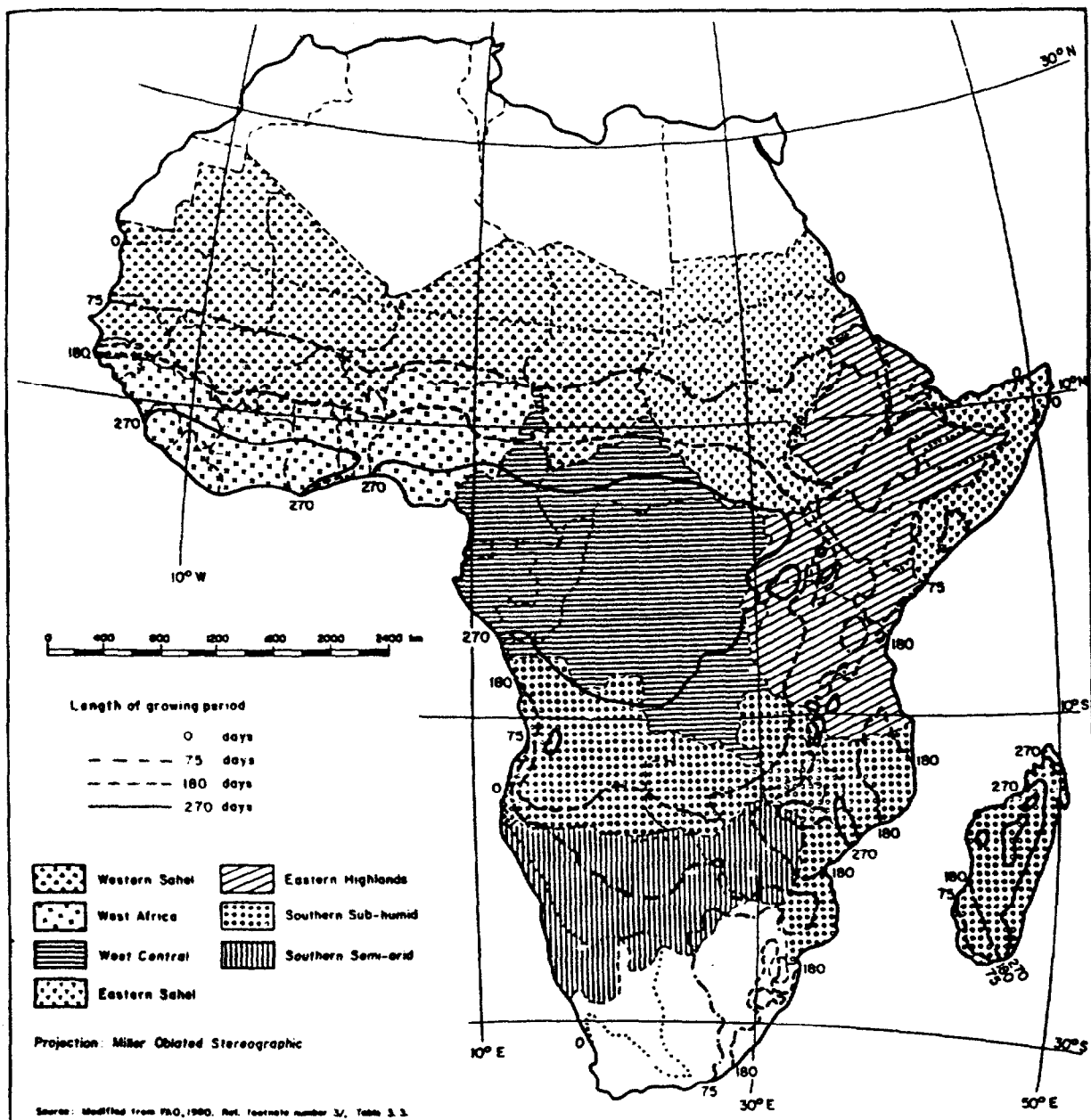
From Table 3.3. it can be concluded that ILCA is giving the highest priority to the Eastern Highlands which are indeed important with 70.1 million units of livestock, a high expected population growth, and a low population-supporting capacity at the intermediate input level. Western Sahel with a low agricultural potential but with 26.8 million livestock units is covered by the ILCA involvement at the ICRISAT site in Niamey. The subhumid zone in West Africa has medium potential and is well represented by the sites at Bamako, Kaduna and Ibadan. The latter site is classified under the humidzone in the ILCA strategy paper, though its length of growing period is only 246 days.

Two interesting agro-ecological zones are not currently covered by ILCA research:

- 1) Eastern Sahel with a semi-arid climate, 36.3 million livestock units and a medium agricultural potential (vast areas of Vertisols, the third ranking soil unit in the semi-arid zone). The highest livestock population in this zone is in The Sudan (22 million livestock units).
- 2) The high-potential southern subhumid zone which accounts for 19.8 million livestock units. Madagascar is one of the countries in this zone with the highest livestock number (10.6 million livestock units).

The number of livestock units in the humid zone of West/Central Africa is small (9.8 million), mainly due to trypanosomiasis problems, and therefore perhaps, should not be considered high priority. In the future this area may be of increasing importance due to its high potential, but it is one of the world's major forest areas and this may assume increasing importance, depending on future scenarios concerning the greenhouse effect. Furthermore, some of the soils are fragile, and further livestock development should not be encouraged too much until sustainable production technologies have been developed. This may be an important area of research for ILCA in the future.

Figure 8.1. Sub-Saharan African Countries Aggregated into Agro-ecological Regions



Another low-priority area is the southern semi-arid zone with 10.4 million livestock units, and low potential for agricultural production.

8.3. Sustainability Dimension of ILCA's Research in SSA.

The problem with the concept of sustainability is that as yet, no methodology has been agreed upon to measure it. The soil profile and its features, together with the climate, underlie most of the biological processes in an ecosystem. The Panel is of the opinion that the soil conservation dimension of ILCA's work should be taken as a measure of ILCA's concern with sustainability issues in the AEZs of SSA. ILCA has not supported alarmist views on desertification due to overgrazing in the arid to semi-arid zone, but has called for a more precise definition and measurement of environmental degradation. The Panel believes that ILCA, with its concern for sustainable livestock production, should participate in such studies.

Table 8.2. Major Soil/Plant Related Sustainability Issues in sub-Saharan Africa

AEZ	Major Issues				Salinity/ Alkalinity
	Plant Nutrition	Moisture Availability	Flooding	Erodibility	
Humid	X	-	-	-	-
Subhumid	X	-	-	X	-
Semi-arid	X	X	X	X	X
Arid	X	X	-	X	X
Highland	X	X	X	X	-

Source: Deckers, J., 1987, Linkage between soil classification, farmers problems and design of soil fertility research, CIMMYT/CIAT/IAR Workshop on Agronomy and Soil, Nazareth, Ethiopia, 1987, (15 pp).

Clarification: X = constraint is common for most soils in the AEZ.
 = constraint less common.

A strong interaction exists between the sustainability issues related to soils, plants and livestock on the one hand, and socio-economic issues on the other. Complex feed-back mechanisms exist from livestock via the soil to plants, in terms of manure and animal traction. Since many of the sustainability issues of livestock have been discussed in Chapters 5, 6 and 7, they will only briefly be summarized here.

Sustainability in terms of plant nutrient conservation in the tropics is a controversial issue. ILCA is doing some work on it mainly under the Animal Feed Resources Thrust in the Highlands Programme. The majority of this work, however, is conducted on Vertisols, which are naturally fairly fertile, but decline in fertility over long periods of cropping without nutrient inputs. The Nitisols which do face severe plant nutrition problems are not being investigated. The Panel considers that production systems cannot be intensified in a sustainable way by the use of low inputs of alternative nutrient sources, if these are either too expensive at the farm gate or have a high value for other purposes. The work conducted at ISC in Niamey Niger, has potential for producing usable results for the surrounding farmers. ILCA should follow an integrated plant nutrition approach in its nutrient cycling research, where the use of commercial fertilizer is balanced against nutrient removal by cropping systems. Plant nutrition experiments could also benefit very much from a mechanistic modelling approach which would eventually allow a much broader application of trial results. Furthermore, this approach allows the risk of fertilizer use to be assessed. Such modelling would best be done through cooperation with one or more of the crop-oriented IARCs in ILCA's mandate region.

The issue of soil moisture conservation is important in the crop - livestock systems of the arid, semi-arid, and highland zones. ILCA trials which aim at optimizing the use of the growing season through intensified cropping systems are mainly conducted under the Highlands Programme. Optimum water use in these experiments results in a higher biomass production and extended soil cover, both of which will contribute to protecting the soil system. ILCA's Animal Traction Thrust can make important contributions to the issue of moisture conservation and its optimal use. Here also, a more fundamental modelling approach will contribute to the value of ILCA's output and ex-ante impact.

Seasonal flooding is a problem, especially in Vertisol areas of the semi-arid zone and the highlands. The problem is well covered by the Vertisol Management Project in the highlands. However, in the semi-arid areas, Vertisol technology may need adaptation to meet local requirements.

Soil erosion due to wind and water is a major problem, in major soil associations in all AEZ of SSA, except in the Ferralsols of the humid zone. ILCA should pay attention to soil erosion in all its crop - livestock interaction work. Grazing crop residues increases water as well as wind erodibility, but many other factors must be considered. The development of the oxen-drawn terrace maker, the oxen drawn scoop, broadbed MPT maker, technology, are only a few of ILCA's substantial contributions to soil conservation.

Salinity/alkalinity is a major constraint to cropping systems in arid and semi-arid areas. Many of the salt-affected areas are exploited as extensive grazing areas. ILCA could study the importance of these salt-affected areas for pastoralism (e.g. Maasai salt

licks in dambos) and the impact of such use on soil stability. Concentration of cattle at fodder banks is another potential erosion hazard.

Heavy grazing by increasing numbers of livestock can lead to disappearance of palatable species in areas such as the arid zone. Conservative grazing policies are desirable but preservation of plant genetic resources is another aspect of long-term sustainability which ILCA addresses with the feed resources genebank. The problem of overgrazing is often associated with land tenure rights. The Livestock Economics Division of ILCA should further contribute to the knowledge of the complex land tenure systems in SSA.

Sustainability depends not only on the maintenance of land resources but also on protection of livestock from disease. Disease control must go hand in hand with multidisciplinary land evaluation and land-use planning.

Genetic resistance of livestock is of major importance for sustainable livestock development in SSA. ILCA's research is taking great advantage of the genetic diversity of livestock in its Trypanotolerance Thrust. Scope for future research may include genetic resistance to ticks and tick-borne diseases. ILCA should, however, be aware that indigenous genes may disappear rapidly due to the use of imported stock through breed substitution and crossbreeding. Genetic variability of livestock, adapted to local environments, may contribute to present and future resource utilization and could therefore be important in ensuring sustainable development.

Economic criteria are of paramount importance in the adaptation of sustained livestock production. The work of ILCA is carried out in a farming systems framework where socio-economic issues are consistently addressed in a sound way.

Small-scale dairy systems may offer a great scope for sustainable social (gender) and economic development, especially if focussed on small-scale processing (acidified, fermented products). ILCA is making a major contribution here with its dairy processing research at Debre Zeit.

8.4. Recommendations

Recommendation 8.1.

ILCA should systematize its efforts related to sustainability in SSA: by setting up a GIS system in cooperation with other IARCs; by ensuring that its experimental data encompass the necessary parameters for modelling, so that results from particular sites can be generalized to wider areas on the basis of input parameters and by planning sustainable crop - livestock systems on the basis of land evaluation in SSA.

Recommendation 8.2.

ILCA should ensure that greater attention is paid to sustainability, through undertaking an adequate ex ante review of SSA sustainability issues relevant to all of its new research projects.

Recommendation 8.3.

In view of TAC's analysis of research priorities in the agro-ecological zones of sub-Saharan Africa and its proposed ecoregional approach to research, ILCA should initiate, and provide the campus in Addis Ababa for, an ecoregional Centre for the highlands zone. ILCA should spearhead collaborative arrangements with other IARCs to contribute complementary expertise towards a holistic programme of research on crop - livestock systems in the highlands.

Recommendation 8.4.

In view of the acute environmental problems in the warm arid tropics (desertification), and the high cattle populations, ILCA should reconsider the strategic option of not addressing this zone.

Recommendation 8.5.

The southern subhumid region with substantial potential is a high priority for future ILCA work preferably in combination with other IARCs with crop responsibilities in Africa.

CHAPTER 9 - TRAINING AND INFORMATION

9.1. Overview

Training and information are the two major channels through which ILCA helps NARS strengthen their research capacity. Through these channels NARS scientists learn about ILCA's research results and methods and communicate their findings and needs to ILCA. The Training and Information Department trains NARS staff in the transfer of technology, teaches them research techniques, provides them with ILCA publications, and furnishes additional information through the documentation service. The training courses also provide NARS with an opportunity for ILCA to gain information about diverse local production problems and technologies. ILCA's publications are outlets for NARS as well as ILCA research results.

The Department of Training and Information is headed by a Director of Training and Information and has recently been reorganized into three Sections: Training, Publications, and Information Services. The Heads of the latter two positions are being recruited at present. Previously, both Publications and Information Services were under a single Section Head. Since each function encompasses distinct technical areas, the division of responsibilities seems reasonable to the Panel. Table 9.1. shows the staffing of the three Sections, which are described in turn.

Table 9.1. Training and Information Department

	International Professionals	Local Professionals	Local Support
Training	2	2	13
Publications	4	-	27
Information Services	1	-	21
TOTAL	7	2	61

Source: Monthly Report Personnel Division, November 1991.

9.2. Training

Within the Training Section are the Training Programmes Unit and the Training Materials and Methods Unit. The Director of Training and Information also serves as

the Head of Training. The objectives of ILCA's training activities are to: train young livestock scientists and technicians in research and laboratory techniques; facilitate the transfer of ILCA's technology through group courses run by ILCA; and develop instructional methods and tools for distant learning organized by ILCA-trained NARS trainers. These objectives are pursued under three themes namely, individual training, group training and training materials and methods.

9.2.1. Individual Training

Individual training aims to improve the research capabilities of NARS by imparting to trainees research skills, research experience and knowledge of ILCA's research methodologies and objectives, using projects of mutual interest to both the NARS and ILCA. Individual training covers short- and long-term training.

The short-term categories are: Technician Associates -- NARS staff seconded to ILCA for one to three months to learn research methods or techniques while working in the Centre's laboratories or sites; Research Fellows -- young African scientists in need of ILCA's laboratory, computer and library services, or the advice of ILCA staff for their research projects, spending one to three months at ILCA; and Undergraduate Associates -- undergraduate students from either developed countries or SSA, spend three to six months working or doing supervised research in field programmes.

The long-term categories are: Graduate Associates -- African students conducting their M.Sc. or Ph.D. thesis research at the Centre's sites for a period of six months to three years, and Postdoctoral Associates -- mostly recent African doctoral graduates of African or overseas universities assigned to specific research projects expected to lead to publishable results; they work at ILCA for a period of 12 to 24 months. Visiting scientists, who were previously administered by the Training Section, are now located in the Research Division.

During the period 1986-91 there have been a total of 986 participants in group and 270 participants in individual training. The large majority came from 40 countries in SSA and a few from North Africa and outside Africa. Table 9.2. shows the number of participants by training category and year. The Graduate Associates were registered for M.Sc. or Ph.D. degrees at eight universities in Africa, 18 in Europe, 10 in North America and three in Australia. Of the 76 Graduate Associates, 49 were registered for Ph.D. and 27 for M.Sc. degrees.

Starting in 1990, mechanisms have been established (set out in Training Policy and Procedures) to ensure that graduate and postdoctoral associates receive supervision, gain as much as possible from ILCA, and direct their resources and commitment into the Centre's research programmes. For the future, the Section plans to: continue the short- and long-term individual training programmes with their focus on African technical and scientific staff; identify the larger graduate programmes concerned with livestock

production research at African universities, and enter into collaborative arrangements to take an agreed number of students from each programme into ILCA sites for their degree-related research; and, investigate the possibilities of staff from NARS undergoing training at the Ph.D. level, being incorporated into the ILCA Graduate Associate Programme.

Table 9.2. Group and Individual Training Participants
by Training Category and Year, 1986-91

	1986	1987	1988	1989	1990	1991	Total
Group Training	144	160	178	216	176	112	986
Technician Associates	17	20	23	13	15	15	103
Research Fellows	3	2	4	6	4	6	25
Undergraduate Associates	9	5	5	3	6	2	30
Graduate Associates	11	7	17	20	16	5	76
Postdoctoral Associates	4	4	2	7	2	4	23
Visiting Scientists*	3	-	2	4	4	-	13
TOTAL	191	198	232	269	222	144	1256

* Moved to the Research Department in 1991.

Source: ILCA 1991. The ILCA Training Database.

9.2.2. Group Training

Group training aims to teach primarily young scientists new research methodologies, or to train them in the use of new technologies. Courses offered at HQ are taught primarily by ILCA staff, although every course, no matter where taught, has one full-time external consultant. As courses are decentralized there will be fewer ILCA and more NARS instructors, for obvious cost reasons. Quality control is the responsibility of a scientific coordinator assigned to each course. The same scientific coordinator is used throughout each series of the same course. Courses focus on new results and future developments. They contain minimum background material and as much field and laboratory work as possible. To ensure the necessary administrative and logistical support, the regional locations are being restricted to ILCA zonal sites and regional offices.

During 1986-91, 25 courses were taught for a total of 57 times. One was held in French, 14 in both French and English and the remaining 42 in English. The number of courses/per year was eight in 1986, eight in 1987, nine in 1988, 12 in 1989, 12 in 1990

and eight in 1991. On average, courses are three weeks in length. During 1991, two training courses held away from ILCA HQ were organized as joint NARS/ILCA courses: one in Kenya and the other in Zimbabwe. NARS scientists participated as resource persons. The Training Section has played a major role in teaching training management to participants in collaborative IITA/ILCA/ICRAF Alley Farming Network for Africa (AFNETA) training courses. The ILCA courses have been redesigned to address specific needs using a modular format. The modules can be repeated in more than one course, permit one set of material to be developed, and allow courses to run simultaneously and share the presentation of common modules.

9.2.3. Training Materials and Methods

The stated objectives of the Training Materials and Methods Unit are to provide an educational input to ILCA training programmes, and to provide graphics mapping, photographic and audiovisual services to all ILCA staff, and to NARS. To meet these objectives, the Training Materials and Methods Unit is operationally organized into educational technology, and service activities for graphics and mapping, photography and audiovisuals. The educational role of the Unit revolves around course curricula development, training materials preparation, development of training methodologies and course instruction.

Each ILCA training course includes modules on farming systems, communication skills, biometrics, and information resources. Training materials are used to supplement instructor-based learning, and to serve as self-learning packages. The emphasis on self-learning materials is expected to help in the process of decentralizing ILCA training and assisting NARS.

The creation of the Training Materials and Methods Unit in 1988 has given the Training Section the capacity to develop materials to accompany ILCA courses. Materials can also be made available to NARS training programmes. The Unit has already made important contributions to manuals jointly prepared with ILRAD, ICRAF and IITA, and with the ILCA Plant Sciences and Livestock Economics Divisions. Collaborative links have also grown between ILCA and CIAT through the Herbage Seed Unit. The Training Materials and Methods Unit is producing a French version of CIAT's slide tape, Essential Elements for Successful Seed Production.

9.2.4. Assessment

The Training Section has made steady progress in its training programme since the Second EPR and the Panel commends its work. Most notable are: increases in the number of trainees every year since 1985 (except for 1990 when there was a reorganization of courses and 1991 when some training programmes were cancelled due to the difficult security situation in Ethiopia); establishment of a training materials production unit; a significant increase in competence in French in the Training Unit (two

of the four staff in the Unit are bilingual); and courses conducted in French; and institution of mechanisms for ensuring more effective supervision of the graduate and postdoctoral associates.

Although NARS throughout SSA appreciate ILCA's training programmes and praise them highly, some NARS have expressed concern over the rather little publicity given to Postdoctoral and Visiting Scientists' opportunities. The Panel suggests that ILCA should publicize these opportunities to reach more potential candidates in the region. The Panel supports ILCA's plans to strengthen cooperation with African Universities and increase the number of Graduate Associates, and to improve human and institutional resources for livestock development in Africa. The plan is intended to focus on trainees most likely to benefit from ILCA's research environment.

Graduate and Postdoctoral Associates have published a total of 46 papers in refereed journals and another 100 appeared in ILCA publications and less formal outlets. These numbers may be understated because mechanisms for identifying papers produced after the associates have left ILCA have not been developed. Nevertheless, the associates' contribution to ILCA's scientific output is significant.

The Training Materials and Methods Unit should be encouraged to establish more partnerships with other IARCs and African Universities where such partnerships complement its own efforts in training, and in the development of course and teaching materials.

9.2.5. Recommendations

Table 9.3. gives the gender analysis of participants in ILCA's training programme during 1986-91. For the group training programmes, the proportion of female participants has more than trebled (from 6% in 1986 to 20% in 1991). The proportion of female individual trainees has shown no definite trend over the years, but was lower for the more advanced programmes, e.g. the proportion of female participants over the five-year period was 22% in the Technician Associate, 20% in the Undergraduate Associate, 12% in the Research Fellow, 7% in the Graduate Associate, 4% in the Postdoctoral and nil in the Visiting Scientist programmes. The overall proportion of female participants was 10% for group training and 14% for individual training. Recognizing that the number of female livestock scientists is much smaller than that of their male counterparts, the Panel feels that ILCA should encourage NARS to increase the number of female nominees or, when planning each course, set aside a minimum number of slots for female participants.

Recommendation 9.1.

Considering that women constitute an important component of the human resources involved in agriculture in sub-Saharan Africa, ILCA should devise means of increasing the proportion of female participants in its training programmes.

**Table 9.3. ILCA Training 1986-91 - Gender Analysis
(Percentages in Parentheses)**

GROUP TRAINING				INDIVIDUAL TRAINING		
Year	Male	Female	Total	Male	Female	Total
1986	136(94)	8(6)	144	41(89)	6(11)	47
1987	146(91)	14(9)	160	29(76)	9(24)	38
1988	166(93)	12(7)	178	45(85)	8(15)	53
1989	194(90)	22(10)	216	48(90)	5(10)	53
1990	157(89)	19(11)	176	42(89)	5(11)	47
1991	90(80)	22(20)	112	27(84)	5(16)	32
Total	889(90)	97(10)	986	232(86)	38(14)	270

Source: Director of Training and Information.

Currently, the evaluation of training after the programme is completed takes place six and then 12 months later. In addition, in July 1991 a questionnaire was sent to NARS in 36 countries from which participants of all ILCA training programmes have come since 1977. Such an evaluation may be useful but a valid impact assessment will require more systematic and extended evaluation.

Recommendation 9.2.

ILCA should develop a systematic evaluation scheme to cover the first three years following participants' completion of training programmes to assess the impact of the programmes on the effectiveness of NARS.

9.3. Publications

ILCA's publications programme both disseminates information about ILCA's research activities and provides a forum for the publication of research by NARS

scientists. The Publications Section edits, prints, and in some cases writes, a variety of ILCA publications. In Panel members' discussions with NARS scientists, ILCA's publications were frequently mentioned as an important source of information.

The total press run during the past five years has dropped from 66,000 pages to 46,000, largely as a result of weeding the mailing lists for the ILCA Newsletter and the ILCA Bulletin (now replaced by the new journal African Livestock Research), and because of the deliberate reduction in the number of Research Reports, as ILCA scientists are encouraged to publish instead in refereed journals. In 1991, the annual report was reconceptualized to be published as two separate publications, the Annual Programme Report for the scientific community and the Annual Report and Programme Highlights for more general distribution. The intent of the change was to target better the different audiences. The French version of the Report in the past has not appeared until a year after the English version. The Panel suggests that attention be given to reducing this delay.

The fourth and fifth Biennial meetings of ILCA and NARS, held in 1987 and 1989, recommended that ILCA establish and publish a refereed journal in place of the non-refereed ILCA Bulletin. The quarterly refereed journal, African Livestock Research, is now being edited, published and printed by ILCA. The first issue, has just been published.

The Panel's assessment is that the Publications Section produces documents that are well written and edited. High-quality printing is not available in Ethiopia, so ILCA has established the in-house capacity to take manuscripts from original submitted materials through to full-colour publications. Since the last review, the quality of service has been significantly improved with the introduction of desk-top publishing and colour. In order to be more responsive to perceived NARS and ILCA needs, the Publications Section has immediate plans to increase its capability to develop publications, rather than react to material brought to it. This, and the increased attention given to developing training materials to be used by the NARS, seem appropriate roles for the Section to fill with impact.

9.4. Translation and Interpretation

The need to work in more than one language is a continuing challenge for ILCA. The Centre is officially bilingual yet, English predominates. With limited resources, ILCA Management continues to address this issue, but not to the satisfaction of the francophones. Many of ILCA's publications issued in English are selectively issued in French but usually, the French version appears much later. In 1991, three of the seven group training courses were given in French and two of the four audio-tutorial training modules were developed in French as well as in English. The staff development programme at HQ has included French language courses and beginning in 1992, classes

will be offered for ILCA staff in a francophone country. Two of the four staff members in the Training Unit are bilingual. The Publications Section includes six fully bilingual professional and support staff.

Despite these efforts, the Centre remains predominantly anglophone. Simultaneous translation is provided at Board meetings but the Board documents are invariably in English. The Publications staff not only must translate Centre publications but are called upon to assist with the translation of routine correspondence. There is insufficient staff to handle translations in a timely way. The Centre has explored the option of automatic machine translation but the state-of-the art software for English to French is not yet of an acceptable standard.

Articles submitted to ILCA should be published either in French or English, with descriptive abstracts provided in the other language. The Panel believes that the Centre is assertively taking steps, and must continue to be responsive, but without a significant increase in resources the Centre cannot be fully bilingual.

9.5. Library and Information Services

Since the Centre's establishment, ILCA's library and information services have been highly regarded. In addition to providing traditional information services to ILCA researchers, the library contributes to the conservation and dissemination of non-conventional literature originating in SSA by microfiching documents in ILCA's areas of interest, produced by NARS. Further, the staff provides information services to users in NARS in over 40 countries of SSA; trains librarians and documentalists from the NARS in information management concepts, tools, and techniques; and, participates in a module on the use of information resources in all ILCA-conducted training programmes.

To accomplish this the library selects, acquires, catalogues/indexes, publicizes, and photocopies/lends articles and other publications. The library is installing an automated circulation system; has an online catalogue for its in-house database of 61,000 records; maintains an extensive collection of "grey" literature; issues quarterly the contents pages of journals in six broad subject areas to over 300 libraries in the NARS; provides on-demand literature searches using its in-house database, CD-ROM services and segments of the CABI (Commonwealth Agricultural Bureau International) and AGRIS (International Information System for Agricultural Sciences and Technology) databases; and similarly provides an alerting service, ILCALERTS, tailored to the specific needs of individual scientists or small research teams throughout SSA. Researchers at both HQ and zonal sites spoke favorably of the responsiveness of the library to their information needs.

ILCA has taken a leadership role in information management development in SSA by offering training programs for NARS library workers and scientists, by providing on-the-job training for them at ILCA, and by spearheading CGIAR-wide documentation and information service activities. On behalf of a group of CGIAR centres, ILCA has commissioned background studies on the possibility of establishing an Agricultural Information Network for Africa to further resource sharing. The Director General currently chairs the CGIAR Preservation and Dissemination Project which is creating a CD-ROM database of 5,000 CGIAR centre publications and which will be supported by multilingual search software and documentation.

Notwithstanding these impressive accomplishments, the library faces a number of challenges. Although the price of scientific monographs and journal titles has increased by approximately 12% per year in the past five years, the library's budget has remained essentially flat since 1987. The library has responded effectively by reallocating resources and reviewing services. An example of this is the study of usage of the Selective Dissemination of Information (SDI) service which led to a reduction of the profiles being processed monthly from 1103 to 500. With the plans for increased decentralization of research to zonal sites, improved access to remote information resources will be necessary. The development of CD-ROM technology and the corresponding reduction in the cost of mastering CD-ROMs provide the promise of data and publications at remote sites, regardless of satellite or telecommunications capability. The ILCA in-house database will need to be made even more friendly in its user interface, not only to encourage end-use activity but because users will have heightened expectations as a result of exposure to commercial CD-ROM products which are extremely user-friendly. With the implementation of the Local Area Network (LAN) at HQ, and presumably at some of the larger zonal sites, commercial CD-ROMs will need to be mounted on the networks. Although Computing has been moved from Information Services to the Research Department, it is important that there be a high degree of collaboration between these two units and that the Head of Information maintain his/her currency in information technology.

In 1986 the EMR noted that the library required physical expansion; the Centre responded that "physical expansion of the library is earmarked as a priority in ILCA's capital development programme", but the funds were not forthcoming. The library continues to experience a severe space shortage for which additions are planned but for which funds are not available. Contingency plans, such as the use of remote storage for materials that should not be discarded, are needed. Some of the library's work could be completed more effectively with additional modern photocopying equipment.

The accepted ratio of professional to support staff in technical libraries like ILCA's is generally 1:2. With the planned separation of responsibilities for the Heads of Information and Publications, the ratio at ILCA will be 1:21. As noted in the previous EMR, the heads of the library and information processing units are categorized as support staff, and the cataloguers who do the indexing and abstracting of key scientific

documents (staff having first degrees and sometimes requiring bilingual facility) are recruited at entry level positions equivalent to a secretary. If ILCA were not an international research centre, the lack of attention given to these staffing patterns would be more understandable. Support staff function well in narrowly prescribed tasks, but problem solving and innovation in these areas, despite the most committed efforts of support staff, require advanced training.

Recommendation 9.3.

ILCA should progressively increase the proportion of professional librarians to ensure it maintains its vital role in strengthening information services to NARS.

9.6. Records Management and Archives

The Centre recognizes that its record management and archival policies and practices need reorganization; this in fact was commented on in the last EMR. A central files management system is maintained through the Registry but, according to staff interviewed, functions quite ineffectively. The concept of a central registry for all correspondence needs revisiting; it may be an approach whose time has past. The existing archive facility appears to be inadequate in terms of organization, physical facilities, and climate control. The Panel understands that the Centre proposes to examine both these areas further in the light of the Centre's needs and currently available technology; the Panel concurs that these are functions requiring attention.

CHAPTER 10 - MANAGEMENT OF HUMAN AND FINANCIAL RESOURCES

10.1. Human Resources

10.1.1. Overview

Human resource management has a broad and a narrow meaning. In its broad sense, every supervisor, manager, and team member is responsible for managing the human resource. This includes almost everyone in an organization. Human resource management means being concerned about the influence of all aspects of management on morale, job satisfaction, productivity, and other indicators of organizational effectiveness. In the narrow sense of human resource management, reference is usually made to the work of the Personnel Division. Personnel can influence organizational effectiveness, but often the effects are not considered over such a wide range of outcomes. Both concepts are important and will be considered in this Section.

Since the last EMR, a Personnel Manager at the international staff level was hired, and the personnel function at ILCA has become more formalized. Policies and policy manuals have been updated and new ones have been produced. Procedures have been elaborated in writing. There have been attempts to define more objective rules for making decisions.

10.1.2. Composition of the Staff

As of December 31, 1991 there were 686 permanent employees of ILCA. Sixty were international professionals, 19 local professionals, and 607 support staff. There were also eight postdoctoral associates, one visiting scientist, and one associate expert. Of the total, 529 were in Ethiopia, 37 in Kenya, 91 in Nigeria, 30 in Mali, and four or fewer in each of The Gambia, Niger, and Zimbabwe. Women made up 28% of the total staff. They were 31% of the support staff, 26% of the local professionals, and 5% of the international staff. The proportions of women have not greatly changed over the review period.

The numbers of international staff who were employed on December 31 of each of the last six years, and staff turnover, are in Table 10.1. The nationality mix of the international staff on the same dates are in Table 10.2. which shows an increase in African staff and a decrease in British and American staff during the period.

Table 10.1. International Staff: Number and Turnover (Dec. 31)

Item	1986	1987	1988	1989	1990	1991
Number on Dec. 31	60	59	58	66	61	60
Turnover	16	5	14	7	14	17
Turnover Rate (%)	27	8	24	11	23	28

Source: The Personnel Manager.

Table 10.2. International Staff: Nationalities (Dec. 31)

Country	1986	1987	1988	1989	1990	1991
USA	6	8	7	6	6	3
UK	19	16	14	18	14	11
Other European	14	11	14	15	17	16
Africa	13	16	15	17	17	19
Other*	8	8	8	10	7	11

* Asia, Oceania, other American.

Source: The Personnel Manager.

The ratio of support to professional staff has gone down slightly over five years (7.2/1 in 1987 to 6.9/1 in 1991). In addition to these "regular" support staff, ILCA employs local support staff on a temporary and casual basis. The Panel was concerned about the number of casual employees who were on long-term status with ILCA, both at HQ and the zonal sites. There were 420 casual employees in Ethiopia on average in 1991, and they had been at a high of about 800 in 1987. The Panel recognizes that Management should have the flexibility to employ these individuals for seasonal or short-term work or for projects with uncertain funding prospects. Yet, ILCA has employed many individuals on a casual/temporary basis for years. These people usually make less money and do not have the benefits of permanent employees doing the same work. The Panel suggests that ILCA more accurately determine its regular labour demand, and adjust its support staff positions accordingly. Permanent employees may be able to replace some of the current long-term casuals.

10.1.3. Personnel Policies and Procedures

A revised Personnel Policy Manual was adopted in May, 1987. It covers all categories of employees. The Manual is regularly updated with amendments approved by the Board. The Manual is widely distributed to ILCA organizational units, but it is not always available to staff outside HQ. The Panel suggests a more complete distribution of the manuals. We also suggest that there be separate manuals for international and local staff.

A major effort of the Personnel Division since the last review was to finalize the policy on job evaluation and classification of support staff positions, which had been started before the review. An external consultant (Coopers and Lybrand Associates, Nairobi) had been retained to do the job classification and evaluation study. The policy describes procedures for promotions, including movements from support to professional staff positions. It includes rules for salary reviews, for grading and regrading

jobs, and for handling appeals. After the reclassification took place in 1988, 43 jobs (11%) were upgraded, 39 (10%) downgraded, and the rest stayed the same. The job evaluation and classification task was done following sound procedures.

A policy on staff reassignment has recently been developed, and it is aimed at anticipating changes in ILCA's skill needs and describing rules for reassigning employees to different locations and jobs within the organization during periods of change. The policy was enacted in 1991 and since then 33 support staff vacancies have been filled through reassignments. A problem during the first use of the policy last year was that employees were not fully aware of their options and some lost the opportunity to continue employment by not applying for available jobs. The Panel suggests the Personnel Division make sure the conditions of the policy are clear when it is applied.

New or revised policies for staff development, recruitment, promotions, and performance appraisal are discussed later in this Section.

The Personnel Division has done a good job of creating policies for ILCA. The Panel believes the policies are basically sound, but it was concerned with reports from employees that the Division is too rule bound. Employees described the Division as operating too much by the book and as not eager enough to solve problems for them. There is a danger in being too informal or too formal in personnel activities. The Division has many achievements but it would do well to try to leave a warmer, more credible impression of itself with employees.

Recommendation 10.1.

The Personnel Division should take steps to improve its performance and image as a service office.

10.1.4. Recruitment and Turnover

Recruitment for international positions is an issue at ILCA. Key positions remain open for long periods, and in some cases searches do not eventuate in selection. Some problems in recruiting for these positions have been: political instability in the host country; inadequate health care; difficulties about housing, furniture, and schools; lack of consumer commodities; spouse employment policies; and the Centre's reputation for high turnover. Despite these conditions, the numbers of applicants for most positions has been high. Once candidates come for interviews, they sometimes decide not to accept positions because they do not like the conditions they see. In other cases, the lack of filling positions may be due to an unwillingness of the Centre's Management to hire someone, often with the conclusion that no qualified candidates exist. The policy on recruiting includes specifications for recruiting, interviewing, and selecting candidates. The Panel sees little problem with the policy, but had questions whether position openings were advertised in the appropriate media.

Financial constraints have also affected recruitment decisions and staffing levels at ILCA. In some cases, the Centre has coped with the problem of unfilled positions by using local staff to do higher level work than their position descriptions would suggest. This approach has advantages in training support staff in new skills and for their job enrichment, but the Centre should be alert to ensuring that responsibilities are being performed by properly qualified personnel who are compensated appropriately for their efforts.

The relatively large numbers of international staff who left the Centre during the last few years (see Table 10.1.) has been a concern to donors and the Panel alike. It is difficult to establish true causes of turnover. ILCA Management attributes the turnover to personal reasons of departing staff members, changes in programme staffing needs, and Management-initiated terminations due to poor performance. The Panel contacted persons who recently left ILCA. Some noted that they left for better opportunities elsewhere, but a number expressed strong differences with the Management. Turnover and reasons for it are good indicators of organizational health, and the rate among international staff during the last several years suggests human resource management problems in the broad sense.

10.1.5. Orientation

In order to ensure successful adjustment, the Panel was impressed that one of the new scientists had been encouraged, during the recruitment process, to bring his spouse on a visit to his potential work site so she could take part in the decision. The failure of professionals on overseas assignments is highly related to the adjustment of spouses, so we commend ILCA for this practice.

During and shortly after recruitment, the Personnel Division has a systematic program for introducing international staff to ILCA HQ. The Personnel Manager goes through the personnel rules and benefits. For HQ international staff, he or one of his staff takes the employee or potential employee and spouse on a tour of the surrounding area to look at housing, schools, and other amenities. A package of written materials has been prepared to orient new staff. Additionally, the spouses have a schedule of orientation activities by a spouses' group. Orientation is equally important for zonal sites, yet is not always possible. Site-specific information packages are needed.

10.1.6. Compensation

The Centre generally pays its international staff well and has a reasonable benefits package. The 1989 Institute for International Education (IIE), Inter-Center Compensation and Benefits Survey, places ILCA salary levels at the top or second of 13 CGIAR Centres surveyed in all job categories, except for the entry level. Benefits packages are more difficult to compare but ILCA fares well in some respects and not so well in others. The compensation packages have been designed to be competitive with

those from other CGIAR centres, as well as the FAO, USAID, and other international organizations. Housing is provided rent-free. The Centre does not provide a personal vehicle, but gives a loan of US \$ 6,500 towards the purchase of a car. It provides an array of other benefits. ILCA should regularly review the comparability of its benefits package across zonal sites with sensitivity to site-specific hardships or circumstances.

Base salaries of international staff are determined from an index that weights four factors: Qualifications, Experience, Responsibility, and Merit, was described by the last EMR.

Another issue was that some employees at zonal sites were not informed enough by the Personnel Division about the nature of their benefits, particularly the limits on health insurance. There may be a need for more detailed information and explanations of the benefits, so misunderstandings could be minimized. The Personnel Division should check more to be sure that important documents and their intended meanings are received by employees at outlying sites. In the almost four years that the Personnel Manager has been with ILCA, he has made two visits to Nairobi and one each to Bamako, Ibadan, Kaduna and Harare. The Panel believes that the Personnel Manager and the staff would benefit from regular visits to ILCA zonal sites, both to consult with staff and to gain an appreciation of their unique conditions.

For locally recruited staff, the remuneration package is based on local market conditions. Comparison surveys are done every three years, but annual adjustments are based on a local group of comparators. Competitiveness for certain skills and inflation are the two main reasons for changing packages. Local staff are paid in local currency.

Another concern among local staff was the inflation adjustment in their salaries. Since the change of governments in Ethiopia in mid-1991, the inflation rate has risen, and local employees have asked how it will be accounted for in their salaries. Similar concerns were expressed about inflation in Nigeria. Since the adjustments are likely to increase ILCA's labour costs in the light of a lower expected budget, ILCA's Management could face difficult readjustment decisions about staffing and salary levels.

An issue related to compensation was an interest in reducing the disparity in travel per diem between support, local professional, and international staff, and even NARS scientists and others, when they were working on ILCA projects. The Panel suggests this issue be examined by ILCA Management.

10.1.7. Performance Evaluation

The performance of ILCA employees is formally evaluated at least once a year. The required procedures described in the Personnel Manual are sound. The performance evaluation form has been improved over the last five years to reflect the categories of staff being evaluated as well as the skill requirements of ILCA.

The general rule for merit increases for professional staff is that a one step increase is the norm for satisfactory to good performance. Two steps are used for very good to excellent performance. For more than two steps, the employees usually must have higher responsibilities assigned to their jobs. For the 1990 evaluations, the average step increase was about one, which resulted in salary increase of 2.6% for international staff, 3% for local professionals, and 4% for support staff, above other adjustments of 4% for inflation and 3% for competitiveness. Of the 52 international staff reviewed, 11 did not receive any step increase and only three received two steps. Staff in their first year of employment usually do not receive a step increase. Three staff received a three-step or higher increase.

Similar proportions of step increases are seen for the local professional and support staff, although there is a higher proportion of very good ratings for support staff than for the professionals.

In general, the performance appraisal system is adequate, but it is not as strong a force in human resource management as it could be. Performance evaluation should include ongoing, positive and negative feedback to and from employees, rather than being just a yearly management practice.

10.1.8. Staff Development

ILCA has introduced a new policy on staff development. It encourages supervisors to propose development activities for their subordinates. The proposals are submitted to the Staff Development Committee, which meets quarterly. There were complaints about the procedure last year, because a number of employees nominated themselves for training and other staff development activities, and their proposals were rejected. Those proposals that did not go through their supervisors were not considered by the Committee. There probably were misunderstandings about the system because it was new last year. The Panel believes it is a good idea to have the proposals include the supervisor's approval, and that staff development funds should only be used for employees who are likely to be continued in employment at ILCA.

10.1.9. Internal Communications

Communication at ILCA is facilitated by the issuance of the ILCA Weekly News and by weekly senior staff meetings. Senior staff members are then expected to pass along information to their subordinates. Use is made of a wide range of communication means: meetings, consultation groups, committees, reports, manuals, guidelines and handbooks. Our interviews with staff at many levels and a review of the report of an ad hoc ILCA Working Group on Communications indicated the persistence of communication problems at ILCA. Unclear procedures and unhelpful attitudes were the reasons most frequently mentioned. The Working Group made a series of recommendations. That ILCA responded so positively to the disclosure of

communication problems is commendable. The Panel encourages implementation of the suggestions of the Working Group, and notes that some of the changes will be difficult to implement without commitment by management and staff and training on interpersonal communications in organizations.

A medium of communication between the Director General and employees at ILCA is the Staff Council. The Council at HQ includes eight members; four international and four local staff. There are Staff Councils or representatives at all ILCA sites. These Councils follow the guidelines in a Statute of Staff Organization. The Councils promote and safeguard the rights, interests, and welfare of the employees. The Councils may submit proposals to the Director General, and they in turn are asked to comment on proposed policies of ILCA. Members of the Councils are elected by the employees and they participate in recruitment, reclassification of jobs, and disciplinary procedures. The HQ's Council has members on all recruitment and interview committees, the Staff Development Committee, and the Housing Committee. It has only infrequent meetings with the Director General.

The Panel visited with the Staff Councils at HQ and at zonal sites. One of the accomplishments the HQ Staff Council does point to with pride was its role in the upgrading of services provided by the Medical Clinic. Yet, in general, these Councils did not see themselves as being very effective. They mainly dealt with personnel grievances and benefits and some saw their role as somewhat adversarial to the Director General. They did not describe many positive steps they were trying to advance. The Director General, on the other hand, said he regarded the HQ Staff Council as a valuable liaison group representing the employees, but he did not appear to use them to get feedback or ideas for improvement (as noted in Chapter 4.2.2., the Staff Council no longer appears on ILCA's organizational chart as an advisory group to the Director General). Our view was that the Staff Councils could be more proactive, constructive mechanisms for dealing with employee concerns. They should actively solicit staff opinions and attempt to sense issues that would be important for the Management to consider.

Recommendation 10.2.

The Staff Council of ILCA at HQ should be used more effectively for communication and problem-solving than it is at present.

To implement this recommendation requires good faith on the part of the Council and the Management. Additionally, because at HQ the Council includes both international and local staff, we suggest the members of these two groups meet separately as well as together to discuss issues and make proposals. As it is now, the international staff are reluctant to raise their issues in front of the local staff. While this suggestion has potential problems, it seems necessary to have bodies that can represent the unique issues of each of these groups, as well as a body that considers issues of general concern to the whole staff.

Communication practices are indicative of the quality of the broad sense of human resource management. Poor communications lead to barriers to effective performance. While communication problems are common in all organizations, they do seem to be relatively serious in ILCA. The Centre has many conditions that provoke communication problems -- sites at long distances from HQ, involvements of many disciplines and people from different cultures, and a complicated set of stakeholders, but some of the problems appear to come from ILCA's management style. Staff feel that there is not an easy access to Senior Management, and that critical comments are not easily tolerated by them.

10.1.10. Gender Issues

The Panel was directed to look at gender issues. As stated in Section 10.1.2., there are not many women professionals at ILCA. We did not see any overt indications of discrimination in hiring or work practices, but we believe ILCA could be more assertive in recruiting women international staff whose numbers are low and have not improved since the last external review. As a proactive measure we suggest Management take steps to increase the Centre's sensitivity to subtle forms of sexism. The Management might consider meeting with groups of women employees to explore issues of concern to them. The Panel also noted with surprise that, although many women are employed by IITA, there were no women out of 44 employees at ILCA's Ibadan site on the IITA compound.

10.1.11. Assessment

Overall, the Panel believes the Personnel Division's part of managing human resources at ILCA is adequate, but needs improvement. Much progress has been made in formalizing personnel practices. The perception of the Division as a service unit that cares needs to be strengthened.

The broader approaches to managing human resources need to be improved at ILCA. There is an undercurrent of complaints and lack of trust in the Senior Management. The words of the Senior Management describe very forward-looking and caring images of how ILCA is managed. There does, however, seem to be a gap between their espoused values and what is practised by them, and hence what is perceived by the employees.

10.2. Management of Financial Resources

10.2.1. Organization of Financial Management

The management of ILCA's financial resources is the principal responsibility of the Financial Controller and 21 headquarters staff. They are assisted in the zonal sites

by four Administrative and Financial Officers, who, in turn, are each supported by local staff. The headquarters operation is divided into two groups: accounting and budgeting. The accounting group, with one local professional and 17 support staff, maintains the general accounts of ILCA, discharges the principal cash receipts and disbursements functions, and maintains the cost accounting records. Cost accounting was introduced in 1988 in parallel with programme budgeting. On the programme budgeting side, the Controller is assisted by one Budget Officer in the planning and budgeting functions. He receives additional support in these functions from the Thrust Coordinators, Cost Centre Managers, and especially the Research Operations Manager in the Research Department.

Since the incumbent Financial Controller joined ILCA in 1987, there has been no addition to the Finance Division, save for the Cost Accountant. There have been additional functions assumed by Finance, however. For example, the Division has taken on the payroll functions and the settlement of accounts for departing international staff from the Personnel Division.

It should be noted that, although donor funding is discussed in this Section, the responsibility for obtaining adequate donor funds for the Centre's programmes rests mainly with the Director General's Office, more specifically, with the Director of Donor and Board Secretariat. (Broader aspects of donor relations are discussed in Section 11.6.).

The computer support for the financial accounting function at ILCA is provided by an HP3000 with the accounting software GL-Plus. The current set-up has been inadequate and trouble-ridden; for this and other reasons, manual parallel records need to be kept. This inefficient arrangement is expected to be replaced by a modern system of networked PCs and the use of a central server, AST 386SX. Two software packages were considered to improve systems support for the financial accounting activities of the Centre, and ACC-PAC has been selected for use commencing this fiscal year. The estimated cost of this conversion is US \$ 10,000. The Panel commends ILCA for the low-cost approach to resolving this particular computer support problem.

The Finance Division staffing reflects an efficient operation. In looking ahead, it may be worthwhile to consider how the finance function, including the computer support, might be better organized to support decentralized operations (see Section 10.2.6.) and strengthen the planning and budgeting function, especially as this relates to the preparation of medium- to longer-term plans of the Centre (see Section 10.2.5.).

10.2.2. Source of Funds

10.2.2.1. ILCA's Funding Base

As with most CGIAR centres, ILCA's principal source of funds is donor contributions which come as unrestricted core, restricted core, or special project grants. Table 10.3. shows that the share of unrestricted core grants of the Centre's total funding fluctuated around an annual average of about 70% during the period 1986 to 1990 but improved in 1991 to 83% of total donor funds received. This improvement resulted from the addition of one new donor (Japan) in 1991 and the shift from the restricted category to unrestricted funds of the contributions of Ireland and the African Development Bank. In addition, a number of previous donors increased their unrestricted contributions. The good results in funding in the unrestricted category was offset by a 50% decrease in restricted and special project funding from US \$ 7.4 million in 1990 to US \$ 3.4 million in 1991, so that overall, the total funds received in 1991 were \$1.2 million lower. Greater reliance on unrestricted core contributions is generally viewed as desirable in CGIAR as it provides a centre's management the needed flexibility in deploying resources and in following agreed strategic plans.

A relatively large proportion of ILCA's funding comes from two organizations -- the World Bank and USAID -- out of a donor pool of over 30 agencies. Over the period 1986 to 1991, the contributions from the two organizations have ranged from a low of 32% in 1987 to a high of 40% in 1986. This continuing dependence on the two organizations by ILCA and some other centres has been a cause of concern for the CGIAR. This points to the need for a strong fund-raising strategy in ILCA to locate other sources of donor funds which can be relied upon on a sustained basis.

Table 10.3. Contributions to ILCA by Fund Type, 1986-91
(in millions of US \$)

	1986	1987	1988	1989	1990	1991 Est
Unrestricted	12.7	11.5	13.6	14.3	13.6	16.3
Restricted	2.5	3.1	2.9	4.2	4.6	3.4
Special Projects	2.1	2.0	1.8	2.1	2.8	
TOTAL	17.3	16.6	18.3	20.6	20.9	19.7
% of total:						
World Bank	18.5	12.1	13.6	19.7	20.6	23.8
USAID	21.5	19.4	22.3	14.6	13.8	15.0

Source: 1986-90 data from the Position Paper by the Financial Controller, June 1991, page IIX-07/08/10; 1991 estimate was provided by the Financial Controller, January 1992.

Note: Totals may not add due to rounding.

10.2.2.2. Funding Policy and Strategy

A number of steps have been taken to strengthen the Centre's funding position. The Centre has built up its working capital fund to a point where the equivalent of about 77 operating days' requirements are covered. The target is to build up the fund to 90 days to allow for "an orderly adjustment to changes in the environment in order to minimize negative impact on ILCA's research work" (Source: Position Paper by the Financial Controller, June 1991.). In addition, the Centre's capital development fund, established in 1984, has been progressively increased to meet asset replacement requirements, when needed. Even so, compared to the Centre's asset base, valued at US \$ 23.6 million at the end of 1990, the capital fund of US \$1.7 million at the end of the same year is still clearly inadequate to meet near-term asset replacement needs. The alternative of creating appropriate asset replacement reserves is already being explored and is being discussed with the CGIAR Secretariat and the external auditors. In addition, the Centre has managed to maintain its interest income on its cash accounts at about the US \$ 500,000-600,000 level annually.

To address the donor funding issues facing the Centre, the position of Director of Donor and Board Secretariat was created in 1987 with the explicit mandate to coordinate ILCA's approach to donors. This coordination is envisaged to have three components: (a) determining donor profiles and preferences; (b) putting together research protocols which meet the donors' requirements and stimulate interest in contributing to ILCA's programmes; and (c) ensuring that ILCA's commitment to donors in terms of program delivery, reporting and recognition are met by the Centre.

The Director General has been a leader in the CGIAR donor funding committee. In addition, the Director General, the Board Chairman and other Board members have been active in undertaking donor visits, where these are viewed as appropriate according to known donor profiles. The Director General visits about six of the main donors to ILCA per year. Board members make important contacts with donors in their countries. These visits to donor institutions are intended to continue and, perhaps, will need to be intensified in the future. The establishment of programme-budgeting has been viewed as having a positive impact in building donor confidence in ILCA, by having an information mechanism which is better understood by the donor community.

Other steps being considered as part of the evolving Centre strategy for fund-raising are: (a) preparation of donor-specific literature; (b) development of a public awareness programme; and (c) with the assistance of the CGIAR, development of more contact with the private sector. In this regard, the Centre has prepared a brochure on ILCA's Portfolio of Prospective Research Projects 1992 which is liberally distributed to potential donors.

The Panel appreciates the steps taken by the Centre in regard to raising donor funding for the Centre. It appears that the donor development process is becoming more systematic. The Panel suggests that ILCA continue with developing and clearly communicating to a wide audience (current and potential donors, the Board, and ILCA staff) its action programme for fund-raising for the Centre. The strategy should encompass not only traditional funding sources but also alternative sources of funds.

10.2.2.3. In-Trust Funds

Since 1990, there has been a new "funding source" for ILCA programmes in the form of in-trust funds. As the name implies, these are not contributions to ILCA but rather donor contributions to NARS in Africa which are given to ILCA to manage on behalf of the donor organizations. These funds are associated mainly with ILCA's networks. While these funds are not used for ILCA's purposes, the programmes these are targeted towards have a direct bearing on ILCA's research thrusts and influence, albeit indirectly, the progress of ILCA's research programmes. In 1990, grants totalling US \$ 688,000 were received in trust. In 1991, an additional infusion of about US \$ 1.7 million was received. The Panel appreciates the value of having the in-trust funds; and, for so long as the administration of the in-trust funds supports and does not distract from the continuance of ILCA's research directions, their continued and increased flows should be encouraged. In regard to trust fund management, ILCA should consider negotiating with donor agencies an appropriate fund administration fee to cover its overhead costs. This is normal practice for trust fund administrators.

10.2.3. Financial Performance of ILCA

ILCA's income and expenditure growths in the 1981-85 period averaged 12% and 10%, respectively, and compared favorably with the financial growth of other CGIAR centres. Table 10.4. shows the variation in ILCA's income and expenditures during the period covered by this Review, i.e. 1986-91, and shows more fluctuations than in the previous five-year period. The period 1986-88 appears to be one of relative income stability, followed by two years of expansion, only to be broken by the current 1991 experience. The need for a solid fund-raising and resource mobilization programme is thus critical at this time if the Centre is to forestall any further slippage in its income base.

A further breakdown of the research expenditures into headquarters research, research in zonal sites, and research support is provided in Table 10.5. The expense pattern indicates that although there was a significant increase in expenditures at zonal sites, a similar increase occurred at HQ, such that the relative share of research expenditures away from headquarters remained relatively stable for a period. The real shift of financial resources to the zonal sites appears to have begun seriously in 1989.

Table 10.4. ILCA Income and Expenditures, 1986-1991
(in millions of US \$ and % Annual Increase)

	1986	1987	1988	1989	1990	1991 Est
Total Income	19.6	19.5	19.7	23.1	24.0	21.0
Total Expenditures	18.6	18.2	19.6	21.2	23.3	20.4
Annual % Change (+/-)						
Income	13.2	-0.6	1.0	17.2	4.0	-12.5
Expenditures	9.7	-2.0	7.6	8.2	9.9	-12.4

Source: Position Paper by the Financial Controller, June 1991, page IIX-04.

- Note: a. 1986-88 Income and Expenditure data are not the same as those shown in the audited financial statements. These figures have been restated according to the current treatment of internally generated revenues to make these consistent with 1989-91 information.
- b. Total Income includes income from donors, financial income, income from auxiliary units, and the increase in the Capital Development Fund.
- c. Total Expenditures includes operating expenditures and capital expenditures.

Table 10.5. also provides the breakdown of expenditures for the major non-research functions of the Centre. Of some concern to the Panel is the disproportionately higher growth in expenditures over the five-year period in management and overhead expenses compared to programme expenditure growth. In regard to overhead expenditures, it should be noted that although these comprise about 23-25% of total operating expenditures, these programmes generate income (from trainees, visitors, staff -- for food and housing services). If these incomes -- which are reported elsewhere in the financial statements -- are taken into account, the share of the overhead programmes of the Centre decreases somewhat to about 19-22%.

10.2.3.1. Actual 1986-91 Experience Compared to ILCA's Medium Plan

The expenditure experience of 1986-91 compared to the Centre's 1988-93 Medium-Term Plan (MTP) points to a gap between actual funding and the resource requirements outlined in the MTP. This gap reflects a CGIAR-wide mismatch between the supply of and demand for funds. Table 10.6. shows how this gap has progressively widened over the past four years. The preparation of the next ILCA MTP should provide an opportunity to re-examine programme directions, the growth capacity of the Centre, and the appropriate funding levels for the various thrusts and disciplines.

Table 10.5 Expenditures by Major Programmes (in millions of US \$, no. of Int'l Staff, and % Growth)

	1986		1987		1988		1989		1990		1991	
	\$	Int'l Staff	\$	Int'l Staff	\$	Int'l Staff	\$	Int'l Staff	\$	Int'l Staff	\$	Int'l Staff
1 Research												
HQ Research	3.2	15	3.0	17	3.9	18	3.8	14	3.1	13	2.2	12
Zonal Sites	6.9	24	6.1	23	6.6	23	7.3	30	8.8	28	7.8	30
HQ Research Support	1.1	8	1.5	6	1.1	5	1.4	7	1.7	5	1.8	5
Total Research	11.2	47	10.6	46	11.6	46	12.5	51	13.5	46	11.8	47
2. Training & Information	2.1	5	2.4	5	2.3	4	2.5	6	2.7	7	2.4	5
3. Overhead:												
Board & Management	0.9	4	0.7	3	0.7	3	0.8	4	1.0	3	1.4	3
Finance	0.4	1	0.4	1	0.7	1	0.5	1	0.6	1	0.6	1
General Services	2.0	3	2.2	3	2.5	3	2.6	3	2.7	3	2.4	3
Personnel	0.2	0	0.3	1	0.4	1	0.5	1	0.5	1	0.4	1
Total Overhead	3.4	8	3.6	8	4.3	8	4.4	9	4.8	8	4.8	8
4. Total Operating Expenditures	16.8	60	16.7	59	18.2	58	19.4	66	21.0	61	19.0	60
Memo: % Annual Growth												
- Research	11.4		-5.3		9.5		7.7		8.0		-12.5	
- Training & Information	5.3		13.7		-5.7		8.8		10.3		-10.5	
- Overhead	10.7		6.6		16.8		4.0		8.2		- 0.6	

Source: a. 1986-90 expenditures data: Position Paper by the Financial Controller, June 1991, Table IIX - 04/05.
b. 1991 preliminary data provided by the Financial Controller, 14 Jan. 1992.
c. No. of International Staff refer to staff count as of Dec. 31 of each year.

Note: Totals may not add due to rounding.

Table 10.6. Operating Expenditures - Actual Compared to the 1988-93 Medium-Term Plan (in US \$ millions)

	1988	1989	1990	1991 Est
Operating Expenditures				
Per MTP	17.9	20.1	22.3	24.6
Actual	18.2	19.4	21.0	19.0
Differ. (\$+ /-)	- 0.3	- 0.7	- 1.3	- 5.6
Difference (%)	1.7	- 3.5	- 5.8	- 22.8

Source: Position Paper by the Financial Controller, June 1991, page 4, and relevant Table IIX.

10.2.4. Financial Liquidity and Cash Management

As noted in the 1986 EMR, ILCA had, in the period 1981-85, improved its liquidity position as measured by the standard current ratio from 0.97 in 1981 to 1.84 in 1985. For CGIAR centres, especially those situated in areas of economic and political uncertainty, the liquidity position needs to be kept strong to ensure continued operation in the event of an emergency situation, as was experienced by ILCA in May, 1991. ILCA should be commended for having maintained its favorable liquidity position at an average of 1.8 over the 1986-90 period.

ILCA's Financial Controller continues to exercise prudent cash management practices, keeping monthly cash flow requirements updated on a monthly basis (including those of the key zonal sites), and continues to work closely with the two financial institutions with which the Centre does its fund management business -- Citibank of New York and the Deutsche Bank.

The importance of competent cash management in a Centre like ILCA is further underscored by the fact that 75% of ILCA's expenses are in US dollars or Ethiopian Birr, where the exchange rate is fixed at EBirr 2.07/US \$ 1, while about 50% of the donor contributions are in US dollars or dollar-related currencies. ILCA experienced a particularly difficult year in 1991 and has suffered an exchange loss of about US \$ 635,000, for which funding from the CGIAR Stabilization Fund has been approved.

10.2.5. Financial Planning and Programme Budgeting

The most significant financial management change introduced in ILCA in the last five years (which has had a positive impact on the Centre's internal management) was the move towards programme budgeting. It was also during this period that the first five-year MTP for 1988-93 was prepared. In light of the discussion in Section 10.2.3. on the widening gap between actual research expenditures, the annual budget approvals and the MTP, the capability of linking longer-term plans with short-term budgets and with actual experience needs to be addressed. The Panel recognizes that the ILCA experience is not unique and suggests that TAC and CGIAR address this issue as a system-wide one which needs to be resolved with some urgency.

Programme budgeting, which has been structured around the concept of "research thrusts" on the one hand and "cost centres" on the other, has brought focus to the task of forward research and financial planning for the Centre. Now in its fourth full year of implementation, Management and staff -- as well as the Board and the donors -- have made positive comments on the process and structure of budgeting.

Now that the basic structure of programme budgeting is in place, ILCA should be well positioned to move forward with further improvements in the Centre's planning tools. As a result of a new CGIAR initiative, ILCA will be required to present a new MTP in 1993 for the five years 1994-98. Considering the need to first carry out any necessary revision of the strategy of the Centre, the Panel expects this work will be commencing almost immediately. It would be beneficial for ILCA (and TAC/CGIAR) to consider the preparation of a "rolling" five-year plan which takes into account current experience. Further, recognizing that decisions on research initiatives normally have cost implications well into the future, it becomes very relevant for research institutes like ILCA to pursue multi-year financial planning as a natural companion to research programme planning.

In order for ILCA to be able to implement improvements to the basic programme budgeting structure now in place, it will be necessary for Management to consider enhancing the organization of the budgeting function. Currently, budgeting and financial planning activities are almost solely performed by the Financial Controller himself supported by one Budget Officer. In these activities, they are assisted by the Research Operations Manager and the Thrust Coordinators from the Research Department. The leanness of the structure in Finance is commendable but may limit enhanced management information for management planning and decision making. The Panel, therefore, suggests that ILCA's budgeting function be strengthened. There appears to be scope within the organization to do this through staff redeployment from within the financial group or from other administrative support areas of the organization.

10.2.6. Implications of Decentralization on the Financial Organization

As shown in Table 10.5. above, over the five-year period from 1986-90 and more notably from 1989 onward, research expenditures in the zonal sites increased significantly from about US \$ 6.3 million in 1985 to US \$ 8.8 million in 1990. Since decentralization of research programmes is to continue into the future, ILCA needs to provide appropriate support structures for these decentralized groups and, thus, consider restructuring the non-research support functions of the organization, such as the Finance Division. As the zonal sites are required to assume more responsibilities for various financial activities, it will be necessary to provide adequate training to staff at the sites, and to provide adequate supervision to ensure continuing financial integrity of these operations. This issue should be considered within the broader context of the management issue of Ethiopia versus zonal sites.

10.2.7. Internal Audit

The office of the Internal Auditor was created in 1984 as a part-time job and as a result of the 1986 EMR was made a full-time position. Since then, the office has been strengthened with the addition of another Auditor. The office reports directly to the Director General as do Internal Auditors in other CGIAR centres. Annually, the Internal Auditor prepares a report to the Board's Audit Committee to present the results of the previous year's work and the proposed work programme for the coming year.

The coverage of the Internal Auditor's work programme is widely dispersed geographically and is generally focussed on financial and the internal control mechanisms instituted in the Centre. Within the scope of the audit assignments, the work accomplished has been thorough. There has been a perception, particularly in the zonal sites, however, that the Internal Auditor tends to apply the financial policies and procedure guidelines rather rigidly, without consideration for differences between the zonal site conditions and those of Ethiopia. While protection of ILCA's assets in its various African sites and financial integrity of the Centre's financial records are the primary objectives of an Internal Auditor, there are circumstances which may require the application of rules with some flexibility.

In connection with the Internal Auditor's work programme, the Panel would like to offer a few suggestions:

- 1) A more systematic follow-up by Senior Management of internal audit recommendations should be made. This would give credence to the function and would provide a signal to line managers on the seriousness with which Management views this function.
- 2) In order to bring Management attention to areas where the Internal Auditor has recommended measures or actions for improvement, it would be useful if the Internal

Auditor reported on a more frequent basis (e.g. quarterly) to the Director General on the progress made -- or lack thereof -- in the implementation of the previous 12 months' audit reports. The Internal Auditor should also prepare a similar report to the Audit Committee with the same frequency, incorporating such comments or responses as provided to the Auditor by the line managers and the Director General.

3) The Internal Auditor should incorporate into the audit work programme other undertakings which go beyond financial audits and which are targeted towards assisting various managers in the organization with improving the efficiency and effectiveness of their operations. The objective of the Internal Auditor's work is not simply to verify that "rules are obeyed" and to report on transgressors but, more importantly, to assist Management with enhancements to existing systems, procedures, and practices in the Centre.

10.2.8. External Audit

Beginning with 1991, a new audit firm, Price Waterhouse, was appointed to handle the external audit assignment of ILCA. Price Waterhouse replaces Coopers and Lybrand, which had been ILCA's auditors in the previous six-year period. The offices of both firms, with African headquarters in Nairobi, were visited. Coopers & Lybrand auditors commented favorably on their experience with the Centre and had no issues regarding the financial management of ILCA. Price Waterhouse auditors, at the time of the visit had no particular view except to indicate that they were prepared to go beyond traditional financial audits into operational (programme) areas to assist their clients with efficiency and effectiveness measures. We hope that when these occur, ILCA Management will view these interventions positively.

10.3. Administration

10.3.1. Overview - Organization and Staffing

ILCA's Administration Department administers the Centre-wide personnel function and provides general services support to research activities in Ethiopia (along with procurement for zonal sites, when requested). Figure 4.1. -- ILCA's organization chart -- indicates the wide range of services provided at present.

The Department is headed by a Director of Administration, although this position has been vacant since it was created in April 1989. Several attempts have been made to locate a suitable candidate, but no appointment has been made. Other managers in ILCA have acted as Director of Administration at various times; namely, the Financial Controller, the Personnel Manager, and the Physical Plant Manager. The current Personnel Manager joined in 1987 whereas a new Head of General Services joined in October 1991, filling a position which had been vacant for close to nine months. Below

this level, there are two other international staff in General Services -- the Housing and Catering Manager (a position that has turned over twice in two years) and the Physical Plant Manager (who has been with ILCA since 1981). Not surprisingly, this part of the organization has suffered from lack of leadership continuity.

In addition to the five international positions (including the vacancy), in 1991 the Administration Department had over 200 regular local staff plus over 100 temporary/casual workers, mainly employed by General Services. Staffing accounts for about 63% of total expenses of this Section, which are estimated at US \$ 2.5 million in 1991 (about 25% of which should be reimbursed through service income).

Because personnel matters are dealt with in Section 10.1., this part of the report only covers the other half of the Administration Department -- General Services.

10.3.2. General Services

The Head of General Services is in charge of the largest block of staff in a single Division. The Division began the year with a total regular staffing complement of almost 200 and about 90 temporary/casual workers. They are organized into five sections: (i) housing and catering; (ii) physical plant; (iii) procurement; (iv) national liaison; and (v) office services.

In 1991 a comprehensive study of ILCA's General Services was conducted by an external consultant. The study recommends a number of specific changes to improve these operations. Management has begun to implement some of the recommendations already.

Under the direction of the Director General, one of the first tasks of the Head of General Services has been to assess the organization and staffing of the Division and to recommend cost savings that would not compromise the efficiency of essential services. This assessment has been completed and by March 1992 the staff will be decreased to 177 regular staff and 36 temporary/casual workers, or an overall reduction of about 28%. Options for contracting out certain services were considered but rejected on cost grounds and for reasons of reliability and speed of outside services. We commend the Head of General Services for taking difficult decisions in the interest of the institution, in what appears to have been a systematic and fair manner.

Another change being considered in General Services is the transfer of part of Office Services -- which handles the registry of incoming and outgoing mail, postal and diplomatic pouch services, telecommunications services, messenger services, and the archives -- to the Department of Training and Information as part of the overall information management function of the Centre.

10.3.3. Housing and Catering Services Section

This Section of the General Services Division is responsible for the hostel operations, staff housing (on and off-compound), the Zebu Club operations, cafeteria and catering operations at headquarters, ILCA's safety and security programme, and general office upkeep. Total assets managed by these services is estimated at about US \$ 18 million, consisting of 60 rooms, i.e. hostel rooms for trainees and visitors, and duplex units (or "tukuls") used mainly for visitors; and 23 staff houses/tukuls in the ILCA compound; one cafeteria and two dining room facilities; the complex of office buildings; and the Zebu Club recreational facilities. This operation is led by a recently recruited international staff member, with a regular complement of 110 staff plus 24 temporary/casual workers. The casual workforce has been reduced by 14 workers as a result of a December review of resource requirements in the Division.

The facilities are well maintained and the services are generally on a par with those in other international research centres. While there are areas for improvement in service delivery as well as in the modernization of certain aspects of operation, e.g. campus security arrangements, these are not of a serious or significant nature. The new Manager for Housing and Catering has begun addressing these. For example, contract purchasing of food supplies (more specifically, meat and vegetables) has been started -- the Manager negotiated lower prices than previously paid for by ILCA; in addition, the supplier has agreed to make on-site deliveries. As another step, the furniture replacement policy has been modified to allow for refurbishing or re-upholstering of furniture which was considered replaceable under ILCA's previous policy.

A review of the occupancy rate of the hostels/rooms indicated that the occupancy rate in 1991 had dropped to 25-30% of capacity. As a result of the assessment of likely room requirements for the near term, a decision has been made to close two of the three hostel blocks to reduce operating expenses. Measures such as these will undoubtedly contribute towards moving this programme to a more self-sustaining basis.

The direct costs of Housing and Catering services are recovered from the users. In 1987, these services realized a net income of US \$ 0.13 million, which dropped progressively to an estimated net cost of US \$ 0.18 million in 1991. Income has not kept pace with rising expenses, particularly in 1991, when the Centre had to cancel several training courses originally scheduled for Addis Ababa and transfer the May Board Meeting to Nairobi due to the unsettled situation in Ethiopia. One of the major challenges of the Housing and Catering Services Manager will be to restore these services to a self-sustaining level. In order to achieve this, the Panel strongly suggests that, in addition to seeking cost-saving measures, a complete review of ILCA's housing and food pricing policy be undertaken to establish differentiated pricing strategies for different client groups (trainees, visitors, Board members, etc.).

10.3.4. Physical Plant Services Section

This Section of the General Services Division is the single largest employer at ILCA HQ. In 1991, there were 52 regular positions and about 88 temporary/ casual workers, managed by an internationally recruited professional. Their responsibilities include general maintenance and repair of equipment (including scientific equipment), vehicles and facilities at headquarters and sometimes also Debre Zeit and, until recently, major construction projects; the operation of the motor pool, including the management of the Centre's fuel and lubricant supplies; and the general upkeep of the gardens and grounds at HQ. The management of the fuel supplies was particularly important during the crisis in 1991. In addition, the Physical Plant Services (PPS) Section does carpentry (i.e. furniture construction) and metal fabricating work. Except for construction and vehicle body repair, all work is performed in-house.

Since the 1986 EMR, the Section has undergone several changes. Up to 1986, the responsibilities of the Section were limited to general maintenance and repair of the facilities and equipment at headquarters and the supervision of construction projects in the compound as well as in Debre Berhan and Debre Zeit. Based on a visual inspection, the facilities appear to be well designed, constructed, and maintained. In January 1987, the transport operations and maintenance was added to the Section, and in January 1990, the upkeep of the gardens and grounds was added.

ILCA's current motor pool consists of 38 vehicles, which includes one ambulance. (The 1992 plan is to reduce these to 24 units.) Pool vehicles are for official uses, not assigned to specific programmes. They are also made available to professional staff for personal use on a rental basis. The vehicle rental policy has been one of the more sensitive issues to Centre staff. It may be worthwhile to re-visit this policy for relevance, equity in staff treatment, and fairness in application.

One of the major challenges of the Manager of the Section is to recruit trained technical staff who can work at the required standards upon appointment. This is a particular concern in the case of very sophisticated electronic equipment. The Panel believes that ILCA should have the capacity to maintain and repair such equipment and suggests that the staff profile be reviewed accordingly.

Another major challenge for the Section will be to strengthen its work planning and monitoring mechanisms. This is predicated on the establishment of service standards for the delivery of various services, especially the categories of maintenance and repair work that Section staff are called upon to do.

There is an "internal charge-out system" operating in the Centre where general maintenance and repair work performed by the Section -- whether these be for equipment, facilities, or vehicles -- are charged to the cost centres for whom the service is rendered. Additionally, the transport pool cost centre is reimbursed for the cost of

fuel and other transport materials (spare parts) purchased by staff, visitors, and other institutions (e.g. CIMMYT), as well as the cost of services requested by them.

10.3.5. Procurement and Stores

In the 1986 EMR there was extensive coverage of the procurement and stores function. Although there was no specific recommendation, there were suggestions for improving purchase planning and monitoring, and inventory management, including the need for more accurate record-keeping at the stock-room level. Through a cursory review of the facilities during the Panel's visit, the improvements suggested appear to have been implemented. The effectiveness of the systems and procedures, which are now codified in a Procurement Manual -- which is a component of the General Services Manual -- are now being tested.

Although the procurement activities of the Section are mainly for the Ethiopian operation, the staff are often called upon to assist and train staff in the zonal sites on procurement issues facing them. This is particularly important because Ethiopia has been a difficult source of materials and supplies (problems with suppliers' reliability and with transportation logistics), and ILCA has increased its reliance on alternative sources elsewhere in Africa, e.g. Kenya.

10.3.6. National Liaison

This Section of the General Services Division, which has eight regular staff, performs functions involving contact with the Government. Among these activities would be liaison with Ethiopian government agencies on utility and communications problems, obtaining visas for travellers at ILCA, obtaining government permits, and miscellaneous services for visitors otherwise not handled by the housing office. This Section also handles travel arrangements for ILCA travellers.

A unique feature of the Travel Office arrangements is the in-house presence of Ethiopian Airlines representative in ILCA. However, the Panel considers that the cost-effectiveness of this arrangement needs to be reviewed to ensure competitiveness with other carriers.

10.3.7. Overall Assessment and Key Issues

Service orientation. While the quality of ILCA's administrative services is generally viewed as quite good, the lack of leadership has probably contributed to what is perceived as a weak service orientation in General Services. This is a serious source of frustration to international staff and their families. It is expected that the new Head of General Services will give this problem the attention it deserves -- seeking input from his staff and service users (at HQ and sites in Ethiopia) -- in order to develop a workable solution.

Staffing and service mix. Another issue of concern to the Panel is whether a staff of 200 is really necessary to provide administrative support to a facility with over 500 staff. In other words, the administrative arm comprises almost 40% of the total (local) staffing of ILCA HQ, which is a ratio of 1.5:1 non-administration to administration staff. Management has begun to address this issue. Related is the question of whether the services provided are appropriate for ILCA's current operations in Ethiopia.

Services from HQ to zonal sites. The 1986 EMR drew attention to the absence of a centralized mechanism to deal with requests from staff at zonal sites to HQ service divisions, resulting in a situation such that requests, at times, "got lost in the system". In order to alleviate this problem, the ILCA Board approved the present structure of the Administration Department in May 1990. In this structure "the roles of the General Services and Personnel Divisions should continue to be largely servicing ILCA's operations in Ethiopia, [whereas] the terms of reference of the new Head of Administration were designed to increase the timeliness and the efficiencies of the services HQ was to render to ILCA's programmes outside of Ethiopia" (Management in a Complex Environment [first draft], February 1991). The position has never been filled, and based on the comments of staff at zonal sites, current arrangements are inadequate. The Panel strongly advises that some realignment of responsibilities within the current administrative/management structure are in order to accommodate the needs of ILCA's scientific staff based at zonal sites, that is two-thirds of ILCA's scientists.

Recommendation 10.3.

It is not necessary to have a Director of Administration as well as a Head of General Services, but ILCA Management should determine which is the more appropriate position to be filled.

Recommendation 10.4.

ILCA should review general services and administrative support needed for the expected operations in Ethiopia and for the decentralized zonal sites, and the desirable relationships between these.

CHAPTER 11 - EXTERNAL RELATIONSHIPS

11.1. Overview - ILCA's Stakeholders

In conformance with its mandate, ILCA must interact with host countries, NARS, other IARCs, research institutions in developed countries, and donors. ILCA has concentrated its efforts on partnerships since its inception, but especially since developing its long-term strategic plan in 1987. The importance of partnerships was highlighted by the Director General at the International Centres' Week in November 1991. ILCA prides itself on its involvement in partnerships, which are important because it operates with limited resources in many countries and AEZs.

To establish meaningful and successful relationships requires that partners share common expectations. At a minimum, this means finding out what each party hopes for and expects from the relationship. In situations involving the NARS and other research institutions, ILCA and its partners must establish common goals, strategies, and projects. Coordination pathways have been established through meetings, consultations, joint planning, implementing programmes, exchanging information, and monitoring research progress. Care must be taken to ensure that true collaboration occurs and that strengths are fostered in both partners. Both sides should feel that they have contributed their comparative advantages to the relationship, and that they have gained something from the partnership.

11.2. Relationships with Host Countries and NARS

Relationships between ILCA and countries in Africa are the responsibility of the Director, Government Relations in Africa, who visits partner countries and negotiates about collaborative arrangements on behalf of ILCA.

ILCA is mandated to interact with and to strengthen the NARS in SSA. To initiate these relationships, ILCA has established formal agreements with 17 African countries. In the 13 recently negotiated agreements, ILCA enjoys the same diplomatic status accorded to UN specialized agencies. In the two earliest agreements with Ethiopia and Kenya, however, ILCA staff have the fewer privileges given to "technical institutions of international character." Only the Director General and DDG(R) in Addis Ababa and the Team Leader in Nairobi have full diplomatic status. In Mali and Nigeria, all ILCA international staff have diplomatic status. In The Gambia, ILCA has the full diplomatic privileges accorded to ITC. The Panel suggests that negotiations should be undertaken whenever possible on the agreements of ILCA with Ethiopia and Kenya to improve the privileges currently available.

ILCA has research programmes in most of the countries where it has these agreements. In a few cases the agreements were made with the anticipation that projects would follow, but they have not yet materialized. In a few instances ILCA works under the umbrella of an agreement of a sister IARC with which it is associated in a country. In Niger, however, ILCA staff working at the ICRISAT site chose to use ILCA's agreement with the Government, because it has more liberal privileges.

Another agreement, signed in 1985, that affects the relationships of ILCA with host countries, is that with the OAU. This agreement allows collaboration on science, training, seminars, research implementation, and grants. The aims of ILCA and the OAU are very similar on livestock research, and it would be advantageous for the OAU to be closer to the CGIAR, even as a member. The relationship with the OAU could be useful in relationships with its member states. To facilitate easy travel in Africa, the Panel suggests that ILCA should continue to explore the possibility of its international staff being issued OAU *laissez passers*. An additional suggestion is to have ILCA's Management explore the possibilities of the CGIAR centres in Africa being given a UN designation, so that a UN passport could be issued to IARC international staff.

ILCA uses several means of working with the NARS. One of its main means is through networks structured around ILCA's research themes and thrusts. ILCA is involved in several kinds of networks. The Trypanotolerance Network is a cooperative research network whereas the cattle, small ruminants and feed resources networks are cooperative research support networks with their own elected steering committees of NARS members. The objectives of the networks are to: develop common research strategies, make better use of existing technologies, promote coordinated research, promote peer contacts, develop leadership capacities in the NARS, improve information dissemination, train scientists in Africa, and solicit and channel support for the network and NARS. ILCA's network research with NARS is conducted at 18 sites, through six thrusts. ILCA has provided network coordinators, offices, and small budgets for administering the networks, but the intention is for the networks to attract donor funds. ILCA has had some success in obtaining donor "in-trust" funds for network projects (see Section 10.2.2.3.).

In order to further interact with the NARS, ILCA convenes at HQ a biennial meeting with leaders of livestock training, research and development in Africa. Participants review ILCA's programmes and make suggestions for improving the collaboration. During the latest meeting in October, 1991, the NARS representatives reaffirmed that ILCA's mandate and programmes were appropriate, but they wanted more involvement in planning the research carried out with ILCA. Following the Panel's discussions with NARS officials at the meeting and on country visits, it is suggested that ILCA try to involve the NARS more closely, particularly in joint research planning, and also in implementing and monitoring results.

To assist the ILCA and ILRAD reviews, the TAC Secretariat sent out a mailed questionnaire to elicit the opinions of individuals in institutions involved in livestock research in SAA about the research, training and information activities of ILCA and ILRAD (Appendix VII). The results indicated that the livestock scientists surveyed, broadly support the research priorities of ILCA and ILRAD, and do not discriminate much between the different programmes of the institutions.

On the Panel's visits to zonal sites, suggestions were made about ILCA and NARS relationships. Several of the NARS insisted that ILCA should not be directly involved in extension work, and ILCA agrees that their mode is to work through the NARS. Cooperation between zonal teams and NARS varies between sites, and this is partly dependent on the strength of NARS in different places.

To handle the problem of coordination with the NARS, the Panel suggests the formation of technical advisory committees in all countries where ILCA has zonal sites, using the model in Nigeria (see Section 6.6.3.). These groups would review joint proposals and make suggestions about training. They would be responsible for assessing the progress of research and recommending to NARS newly developed technology arising from joint research.

11.3. Relationships with IARCs

ILCA has collaborative research programmes with ILRAD, IITA, IFPRI, ICRISAT, IPGRI, CIAT, and ISNAR. In addition, it acts as host for staff from CIAT, IFPRI, ICRISAT, CIMMYT, and CIP. ILCA has research teams based at ILRAD, IITA, and the ISC. The collaboration at the ISC is especially promising for research on the interactions between plants and animals. With the growing interest in zonal sites, collaboration with other centres, including non-CGIAR regional centres, is likely to be a feature of ILCA's work.

ILCA currently has a special relationship with ILRAD, both centres work on livestock problems in Africa. Each of the centres sends observers to the other's Board meeting. The centres have collaborated effectively in research through the Trypanotolerance Network. Further discussion of the relationship with ILRAD is found in Section 11.4.

The Panel also considered the growing relationship between ILCA and IITA and ICRISAT. Merging these centres is not an issue, but refining and formalizing the collaborations could be useful. At the ISC, the ILCA scientists based there and the Deputy Director General (Research) take part in the Sahelian Centre's research planning. The current cooperation is excellent at this site. Cooperation between IITA and ILCA is good, but could be strengthened by establishing a closer formal agreement.

Two regional centres, ITC and CRTA, have had collaborative relationships with ILCA. These centres have prospects for support from donors, and they could play an important role because of their mission and if a strong ecoregional emphasis emerges for organizing the IARCs. ILCA should continue to explore relationships with these centres, while at the same time being concerned about stretching itself too thinly within and across many sites.

11.4. Relationship with ILRAD

11.4.1. Introduction

The ILCA Panel was asked whether the plan to amalgamate ILCA with ILRAD should be revived, and whether ITC would be an appropriate field station of a larger centre. The possibility has always been recognized that ILRAD and ILCA could eventually merge. The attraction is that the two centres would then have a mandate for both animal disease and animal production issues throughout SSA.

11.4.2. Present Situation

The two centres have evolved very differently. ILRAD carries out research at a sophisticated scientific level into only two diseases. The research work is concentrated at its Nairobi HQ. In contrast, ILCA has taken a broad responsibility for SSA livestock research at an applied level at zonal sites. The only area where the two centres have overlapping interests has been in the trypanotolerance research work.

11.4.3. Trypanotolerance Research

Work on trypanotolerance has been carried out in a network between ILCA, ILRAD and NARS. The work has been successful and the cooperation between all parties has been excellent. A number of factors probably contributed to the success of this work:

- the research has been carefully planned;
- the research has been strongly focussed, followed standard protocols, was limited to six cooperating countries and was carried out continuously for 13 years;
- a facility with infrastructure and a N'Dama herd were available at ITC; and
- the quality of the scientists was high and researchers of both ILCA and ILRAD were located together.

The fact that the cooperation between the two centres has been so successful could be used as an argument that amalgamation is not necessary. However, wider issues need to be considered.

11.4.4. Assessment

A complete merger of ILCA/ILRAD could have the following advantages:

- 1) A clear priority setting for the factors limiting animal production in SAA. Animal health is one priority, but there are many others and they interact. This advantage would only apply if ILRAD took a wider view of animal disease problems;
- 2) One location of a livestock production/disease institute with common facilities (library, computers, training etc.), one board, one programme committee etc.;
- 3) Integration of livestock production/animal diseases at different AEZs; and
- 4) A merger of some disciplinary oriented sections of ILRAD and ILCA, resulting in a greater critical mass.

A complete merger of ILCA/ILRAD could have the following disadvantages:

- 1) Although there is always room for the improvement of the present collaboration between ILCA and ILRAD on trypanotolerance and socio-economics, other ILCA thrusts (e.g. Small Ruminant Milk and Meat, Animal Feed Resources and Animal Traction) would benefit little from a merger.
- 2) Of the various disciplinary units at ILCA, only the animal reproduction and health will scientifically benefit from knowledge present at ILRAD (embryo transfer, bovine genome mapping and diagnostic reagents). Of the disciplinary units at ILRAD, only the socio-economic unit could scientifically benefit from cooperation with ILCA. These benefits are too limited to warrant the inevitable costs, disruptions and trauma of a complete merger.
- 3) The current cooperation in the Trypanotolerance Network could hardly improve.
- 4) A director-general and other senior scientists with good scientific background in animal diseases and livestock production for a common institute would be very difficult to find. In the past, professional competence in specific areas was always the strongest selection criterion for the Director Generals, DDGs and Directors of Research both at ILCA and ILRAD.

11.4.5. Recommendations

- 1) Cooperation in future between ILCA and ILRAD will depend on the operational goals chosen by ILRAD. During the preparation of the ILRAD MTP arrangements should be made for formal input from ILCA, and vice versa, possibly by joint meetings of the programme committees.
- 2) Depending on the expansion of ILRAD's goals, ILCA and ILRAD should expand their existing successful cooperation in agreed topics.
- 3) The research centres at ITC and CRTA could be appropriate sites for ILCA/ILRAD joint work in the future, but they should not be funded by either or both centres in the absence of strong needs for particular research.
- 4) Arrangements for cooperation at management and Board levels between ILCA and ILRAD should be continued and could be strengthened by some overlapping Board memberships.

Recommendation 11.1.

A complete merger between ILRAD and ILCA is not recommended at this time. Cooperation should be increased in respect of planning by both centres and in respect of use of ILRAD's scientific techniques in ILCA's research. The possibility of a partial merger should be considered at the time of the next review of both Centres.

11.5. Institutions in Developed Countries

ILCA has relationships with scientists from a number of developed countries to provide expertise and equipment for upstream research. ILCA relies on external institutions for capabilities in biochemistry, biotechnology, genetics, and genome mapping. Scientists who work on these topics in specialized and concentrated research settings in developed countries are used to augment ILCA's research capabilities. Some of this service is supplied to ILCA through expert consultancies or longer-term relations with institutions and scientists.

Some of the relationships with institutions outside Africa develop because of donors' special interests in topics. These relationships are often funded through special projects, and then may involve placing the scientists from the donor country at ILCA as research associates. These visiting scientists are treated like ILCA staff, and overall these relationships appear to function well.

11.6. Donors

ILCA interacts on a regular basis with the CGIAR donor members, particularly at the annual International Centres Week meetings. The Director General has served on a number of Committees, including the Donor Relations Committee organized by the CGIAR Secretariat. He has also recently served as Chairman of the Committee of Centre Directors and has been very active in this forum. ILCA realizes it must be more active in attracting donor funds and the Director of Donor and Board Secretariat is preparing new initiatives (see Section 10.2.2.2.).

11.7. Assessment

The most important and sensitive relationships appear to be with the NARS. A number of their representatives believe ILCA should be more participative in planning and implementing programmes with them. ILCA makes strong efforts to involve them in reviewing its programmes and in planning, but some of the NARS want an even stronger voice and greater recognition of their strategic needs and goals in the work of the Centre. In some cases, it may be necessary for ILCA to involve the NARS even those which are not strong, in order to help them develop new capabilities.

CHAPTER 12 - OVERALL ASSESSMENT

12.1. Introduction

The Panel believes that ILCA is making a valuable contribution to livestock research in Africa and is a worthy member of the family of CGIAR Centres. The report of the Panel has been deliberately brief in an effort to draw attention to our principal findings. In doing this we have not been able to describe all of the good work being done. We have, however, tried to suggest changes that we believe will help the Centre, and this is the reason for our suggestions in the text and the purposely limited number of recommendations.

The environment in which ILCA operates is one of extremely high-priority needs, but many difficulties. The continuing high birth rate in nearly all countries of ILCA's region brings the need to achieve adequate food and income for rapidly increasing numbers of people. The difficulties arise from the range and intensity of livestock problems and the lack of infrastructure for proper operations in many areas. Throughout the last five years, including the present, social disruption ranging from rioting to warfare has affected a large number of the countries in which ILCA should work.

The Panel believes the motives that led to the founding of ILCA are more valid now than ever before. It is very difficult to try to allocate ILCA's limited resources over such a wide range of high-priority problems. The Panel is of the firm opinion that ILCA warrants more resources and strongly supports efforts to obtain additional funding.

12.2. Impact and Potential Value of ILCA's work

ILCA provided the Panel with many documents describing the Centre's achievements and discussing the potential for impact of current work. The draft "Potential for Impact, ILCA Looks to the Future, January 1992" was a particularly valuable discussion of the topic which will benefit future research planning at ILCA.

The Panel has looked for, and found evidence of, adoption of practices arising from ILCA's work, although it recognizes that the process of adopting new technologies in Africa is slow for many reasons. One of the most promising innovations demonstrated to the 1986 EPR was "fodder banks in the subhumid zone of Nigeria". This is now being widely adopted, albeit more slowly than at the anticipated rate. Other component technologies such as the broadbed maker for the Ethiopian Vertisols and the use of browse from alley-farming tree rows in the humid zone of Nigeria are being used by farmers, although in both cases the rate of adoption is slow. The Panel has no doubt

that much of the research being carried out by ILCA, including the very successful work on trypanotolerance in N'Dama cattle, will make major contributions to livestock production in the longer term.

However, many African livestock research leaders believe that the greatest contribution ILCA makes to livestock research in Africa is through the improvements it brings to the capacity of NARS. The Panel agrees with this conclusion. The current MTP of ILCA, "Sustainable production from livestock in sub-Saharan Africa", states one of its three operational goals is "to strengthen the ability of NARS..." so this has been a main activity. Indeed, ILCA's interaction with NARS and livestock research leaders throughout Africa is one of its strengths. The Panel observed a variety of ways ILCA is building capacity in NARS. These included cooperative research support networks, training of all kinds, joint research activities and library and other information systems. For many livestock researchers in isolated situations in Africa, ILCA provides the best link to research activities in their field.

Livestock research problems of Africa are complex. Both ILCA and the NARS have important contributions to make in solving these problems. The NARS need assistance which is problem oriented and scientifically relevant. Only an institution actively involved in research which is relevant to these issues can provide such help. This is why ILCA occupies a key position in any strategy to build Africa's livestock production and, through that, the food self-reliance of its populations.

12.3 Management

The last EMR in 1986 commended the improvement in management at the Centre, but had concerns about the problem of Board and Management interaction. That problem has been overcome and the Board Chairman and the Director General have cooperated well. ILCA has a well-informed Board who take their duties seriously. The Panel has made some suggestions which it believes may enable the Board to contribute better to ILCA by increasing the interactive processes at meetings of the Board and its committees.

ILCA has given close attention to many aspects of its management, including very thorough documentation of procedures. Financial management is competent at ILCA. There is a need to increase donor funding, and this responsibility should be given attention by Management and Board. Human resource management is one area of concern. Over the two years prior to the Review a high proportion of the international staff had left ILCA, and this caused the Panel to examine the situation. Staff have left for a wide variety of reasons. Certainly, one reason was the recent problems in Ethiopia. However, the Panel believes that good staff morale is critical to ILCA's continuing progress and suggests that the Board and Management work together to overcome any problems and maintain or restore staff confidence.

ILCA has strong overall leadership of its research activity. The Panel was very interested in the research management system. Current management consists of a series of cost centres including zonal team sites and discipline groups who submit projects under thrust headings. The procedure has advantages, including the identification of focus and emphasis on interdisciplinary work. The system is regarded by the Management as one of ILCA's strengths. The Panel did not think that, below the top level, research leadership was uniformly strong at ILCA. This may result partly from the high staff turnover rate (all three discipline division heads had left in the last 12 months), but the Panel believed it was partly a result of the dispersed system of "matrix" research management. The Panel thought that leadership needed to be strengthened and supported changes to the thrust system being considered by the Centre. The Panel accordingly made recommendations which, it hopes, will give leadership expertise and support to research workers throughout ILCA.

12.4. Balance in Programmes

In ILCA's strategy and medium-term planning, the Centre made choices. The species it works on are cattle, sheep and goats, it targets small farmers and agropastoralists; it emphasizes work in the semi-arid, subhumid, humid, and highland zones but not the arid; and, it emphasizes the products of meat, milk, traction and manure. In general, the Panel believes these choices are still correct. The only modification that the Panel would wish to consider is in respect to the agro-ecological zones. Increasing emphasis on sustainability issues leads us to believe that more emphasis should be given to resource management in the arid zone. Conversely, despite the high long-term potential of the humid zone, the Panel believes that work there does not have quite as much priority as in the highland, semi-arid and subhumid zones.

Recently the balance in resource allocation between HQ and zonal sites has changed in favour of zonal sites. Generally, the Panel supports this distribution. However, as funding availability varies, it may be necessary to depart from predetermined ratios to start new initiatives or maintain essential core groups. This applies to the need to maintain a strong and balanced representation in the scientific disciplines on which ILCA depends; animal science, plant science and economics. These disciplines may be maintained by HQ staff but the staff could, in some cases, be stationed outside HQ. At present, ILCA could benefit from scientists in forage agronomy and micro-economics who could lead and supervise work of disciplinary team members in these disciplines. The location of disciplinary scientists needs to be considered in the light of their need for facilities and specialized equipment.

The 1986 EPR suggested that, in the future, the research of ILCA could move upstream. The present Panel does not believe a major move in this direction would be appropriate yet. The operational mandate of ILCA requires it to work for smallholders and the problems of these largely subsistence, crop - livestock farmers and

agropastoralists are difficult to solve. Because of the physical and socio-economic constraints on their activities, a farming systems approach is often required to identify useful interventions and test them at the farm level. Most NARS in Africa work under organizational arrangements which make it difficult to assemble interdisciplinary teams. Extension is often separated by further institutional barriers. ILCA has a comparative advantage over most NARS in Africa for interdisciplinary work. ILCA's interdisciplinary teams working at the farm level in cooperation with NARS can improve the capacity of national scientists to carry out such work. ILCA's comparative advantage is largely a consequence of its integration of different disciplines. This Panel still agrees with the 1986 recommendation that ILCA continue to undertake work with a farming systems approach, although it should not preclude carrying out strategic research where the need arises from problems identified in research with a farming systems perspective.

12.5. Focus

The livestock production problems of SSA are enormous. ILCA is seriously limited by a shortage of resources. Resources, currently available, are well below those required to meet the needs of the 1989-93 MTP. It does not seem likely that resources will increase substantially in the near future, although ILCA's needs are great and every effort should be made to attract additional funds. Under these circumstances, the only way ILCA can continue to carry out high-quality research using very good international scientists in adequately staffed teams is to make its focus even sharper by reducing the scope of its work. The Panel believes that in preparing its next MTP over the next 12 months, ILCA should reduce the number of research themes it addresses.

The current strategy of ILCA identifies six research thrusts: Cattle Milk and Meat; Small Ruminant Meat and Milk; Animal Traction; Animal Feed Resources and Resource Use, Trypanotolerance and Livestock Policy. The introduction of thrusts served a useful purpose in providing some focus and changing ILCA's research management system. The Panel believes the structure is no longer optimal and consequently supports some modification. Some of the thrusts, such as the Cattle Milk and Meat, are so wide as to give little focus. On the other hand, the identification of scientists to lead six thrusts has placed strains on ILCA's limited number of research staff. The Panel has recommended that ILCA should be prepared to amend its strategy in preparation for the next MTP by restricting the number of research themes and changing the arrangement of thrusts. The Panel believes that the Centre is already considering such changes.

12.6. Agro-ecological Zones

The Panel addressed the issue of agro-ecological zones and derived a classification of SSA into groupings of countries as agro-ecological regions on this basis.

These regions, which do not equate precisely with soil and climatic boundaries, enable a simple examination of the present allocation of ILCA's resources.

The Panel considered the distribution in terms of needs (i.e. in areas of high livestock population and pressure on resources) and in terms of payoff (i.e. in areas with high potential for improved production). The area in which ILCA appeared currently over-represented was the West African subhumid area. Despite a high resource input into the site at Bamako since 1986, the research programme has had limited achievements. The Panel did not believe the programme there warranted continuing as a research site. Possible new sites in Sudan and Somalia have high need, but conditions are not conducive to a stable research environment. The work at Mombasa is progressing well, but this site should be reviewed when current work ends because it is not typical of a large area of Africa.

The Panel considered that the highest priority for a new zonal site would be between the semi-arid and subhumid zones of Southern Africa, and this accords with the Centre's initiative to investigate cooperation with other IARCs to establish a subregional centre in Southern Africa.

As ILCA begins developing its next five-year plan, it should rethink the allocation of physical, human and research support resources required in a decentralized research model. Such an exercise would result in goals for ILCA HQ to move towards, as ILCA implements its decentralized research programmes.

Looking forward to new arrangements for IARCs in Africa, based on agro-ecological responsibilities, the Panel suggests that a logical basis would be for ILCA to be the Centre providing the campus for crop and livestock work in the East African Highlands. It could host staff from other centres such as ICRISAT for work in this zone. ILCA would provide input to livestock and crop - livestock activities in other zones, in cooperation with other Centres. Cooperation with ICRISAT at ISC, close to Niamey, is appropriate for the semi-arid zone. For the humid zone, ILCA should continue to cooperate with IITA at Ibadan. If IITA establishes a sub-centre at Yaounde in Cameroon, ILCA could consider carrying out its humid zone work there. At Kaduna, ILCA cooperates closely with NARS and, for the present, the site should remain as its West African subhumid site. In Southern Africa, ILCA should look for cooperative arrangements with ICRISAT, IITA and other centres to establish a suitable site and cooperative arrangements for crop - livestock work in this agro-ecological zone.

12.7 Cooperation with ILRAD

ILCA has excellent cooperative arrangements with ILRAD in the trypanotolerance programme, and the Panel commends this work.

The Panel examined possible new arrangements between ILCA and ILRAD, including a complete merger, and chose a solution of increased cooperation over a wider area with examination of a partial merger at the next review. The increase in cooperation would be in two areas. Firstly, ILCA should use its wider interests in African livestock to help ILRAD select its new operational mandate, both at ILRAD's Board and Centre level. Secondly, ILCA and ILRAD should also cooperate so that ILCA can use sophisticated techniques available in ILRAD, where these are relevant to ILCA's research.

12.8. The Future

The future of ILCA as a CGIAR Centre would appear to lie in two main roles. Firstly, it would continue as a multilaterally funded Centre carrying out its original purpose of research and capacity building for national systems. Secondly, it could also operate as a knowledgeable and responsible agency, through which bilateral or project donors could direct funds in an effective way. This would include funding of specific projects within ILCA's operational mandate and "in-trust" funding for purposes such as research support networks.

The remarks on "Future Strategy" in the 1986 EPR of ILCA emphasizing the importance of a farming systems approach are as relevant now as they were then. If anything, the 1986 Review was too optimistic in respect to the progress expected in African NARS. The economic problems of most countries have prevented them from developing NARS and national extension systems to integrate adaptive and applied research with extension in a systems approach.

We expect to see three kinds of work remaining important in ILCA's medium-term future. These are:

- 1) Adaptive or applied work on livestock farming systems, including crop - livestock systems, carried out in Ethiopia or zonal sites, frequently in association with other IARCs and NARS.
- 2) Livestock research, partly at an applied level in association with NARS; but largely strategic research on innovations or problems specific to African livestock.
- 3) Leading, initiating and supporting networks. These would include cooperative research and research support networks.

ACKNOWLEDGEMENTS

The members of the External Review Panel want to record their appreciation to the ILCA Board, Management and staff for their cooperation and assistance throughout the Review. ILCA made excellent arrangements for the Panel visits to Zonal Sites and Regional Liaison Offices. At ILCA HQ we were provided very good facilities for our work. Arrangements for our accommodation were excellent.

We also thank ILCA's collaborators in the African NARS and other IARCs whose views helped shape the content of our report.

Special thanks are due to Louis Forget of The World Bank's Legal Department for his review of and comments concerning ILCA's legal documents.

The Panel appreciates the considerable work ILCA staff put into preparing documents for the Review. Staff spoke openly and frankly with us and went out of their way to meet requests for additional information. We would like especially to thank the Walshes and Fitzhughs for their hospitality. Ralph von Kaufmann was very obliging in his role as ILCA Liaison Officer for the Review.

The production of the Report by the deadline would not have been possible without the dedicated, accurate work of Woinishet Demissie, Abeba Zenebe, and Azeb Bekele of ILCA's staff. They worked untiringly under the cheerful, able leadership of Noemie Del Marr, of the CGIAR Secretariat, to type the numerous drafts of the Report. Other ILCA staff who helped us with specific tasks include: Hiwot Berhane quickly solved any computer problems which arose; Inca Alipui worked under pressure to copy edit the Report; Admassu Wondafrash and Abdulhakeem Mohamed prepared the Figures; Getahun Kifle handled our logistical arrangements; Mahmoud Saleh, Zewdu Tadesse and their colleagues in the print shop worked quickly and efficiently to produce the Report; and Solomon Zewdie assisted with the statistical analysis of the NARS survey.

**Appendix I.1. Assessment of ILCA's Progress in Implementing the Recommendations
of the 1986 External Programme Review**

Recommendation	Implementation			Comments
	Full	Partial	None	
Strategy Considerations				
1 ... that ILCA should endeavour to focus its research activities .. ensure continuity of effort and avoid spreading its resources too thinly over a broad spectrum of activities ... to define its long-term strategy as a basis for the setting of short- and medium-term priorities (para. 42 and para. 633 EPR report). [Strong recommendation.]	X			Efforts to address this recommendation were made in the ILCA strategic planning exercise.
2. ... that the present distribution of effort between research, information, training and liaison is satisfactory but that it is important that there be no proportional reduction in expenditure on research (para. 46 and 624).	X			The proportion on research has been maintained at about 65%.
3. ... that ILCA should continue to carry out research in a farming systems context... the nature of the component research carried out will be determined by the requirements of the problem... the objectives will have been determined by the analysis of constraints in farming (para. 50 and 625).	X			These issues were addressed in the ILCA Strategy document and have largely been implemented.
4. ... that there should be no further strengthening of research at headquarters at the expense of zonal programmes... (para. 55 and 625).	X			In the past five years, ILCA's resources have been increasingly committed to the zonal research sites.
5. ... that (the Mali team)... focus its activities on a smaller number of priority topics... (para. 355).	X			The Mali research site has limited its programme to regional research coordination, peri-urban dairying and range resource trends.
6. ... that ILCA consider ways of responding from within or outside ILCA to requests for short-term consultancies of an advisory nature (para. 411).		X		ILCA has attempted to respond to requests for consultancies. Some modes (e.g. through the work of the Programme Liaison Offices) have worked well. Others (such as World Bank consultancies) have been more difficult to respond to adequately.

7	... that the approach used by ILCA in Zimbabwe be considered in other national settings where similar conditions exist.... where desirable, such consultants should be prepared to make repeated visits in order to preserve continuity (para. 421).	X			Modes of collaboration with NARS were discussed in general terms in the Strategy document. These proposals have now been implemented.
Closer Collaboration, Consultation, Liaison, Coordination					
8.	... that ILCA should liaise with other centres.... which plan to work in the country to avoid possible incompatibilities in terms of advice, approaches advocated etc. (para. 423).	X			ILCA now has a wide range of liaison and collaborative links with other centres.
9.	... that, whenever ILCA makes similar inputs.... in other countries, a liaison scientist at ILCA headquarters be identified to help maximize the benefits of the linkage to the national programme (para. 425).	X			Liaison is now coordinated through the Director of the Office of Government Relations in Africa at headquarters and the Programme Liaison Officers at Harare and Bamako.
10.	... that training courses for national staff that involve an input from ILCA be held within the national setting (para. 427).		X		With the increasing number of national staff trained at ILCA, more emphasis is recently being placed on in-country training.
11.	... that Computing Section staff analyze the computing requirements of each field programme, identifying special conditions and developing site-specific recommendations for consideration by Team Leaders and ILCA Management (para. 454).	X			The Computer and Biometrics Unit is now part of the Research Support Division. The needs for computer access and computer literacy are being recognized and addressed.
12.	... that biometricians be assigned responsibilities for field sites with this particular responsibility, including periodic visits to the field for first-hand consultation with researchers (para. 455).	X			One full-time ILCA biometrician has been assigned to Bamako and another works part-time on biometrics in Nairobi. The biometrician based at ILCA HQ has been given some opportunity to visit field sites.
13.	... that ILCA Management take advantage of the current desire for cooperation by the Government of Côte d'Ivoire with a view to finalizing a formal agreement (para. 476).			X	The Centre has tried to implement this recommendation but repeated attempts to have an agreement signed have not, as yet, been successful.
14.	... that collaboration between ILCA and national institutions be further developed, possibly through the establishment of joint research projects (para. 478).	X			The number of collaborative projects with NARS has been increased.

15. ... that fresh efforts be made to attract scientists to ILCA who are competent in both English and French (para. 479).	X			Bilingualism is an important criterion for employment to many posts at ILCA. At present, 33% of international staff have French either as their first language or are fluent in French.
16. ... that additional mechanisms be sought for establishing the views of national institutions regarding such priority areas through which research at ILCA could contribute to solution to livestock research problems at the national level (para. 480).	X			Implemented through the Biennial meetings, strategy discussions and programme planning meetings in 1987 and 1988, on an ongoing basis in Network Steering Committees and through participation in ILCA's annual programme planning meetings in 1991.
17. ...that ILCA give high priority to the establishment of activities that help build up the quality, motivation and research capacity of livestock research personnel at the national level (para. 655)	X			Implemented through an expansion in ILCA-associated collaborative research activities and networks and training activities
18. ... that meetings ... (of zonal Team Leaders) ... be organized in the various zonal sites, and that frequent visits by senior headquarters scientists to the zonal programmes be encouraged (para. 629).	X			Implemented, although most meetings of zonal Team Leaders are held at HQ.
19. ... that collaboration with other IARCs be used as far as possible to ensure that crop-related expertise is available to the programmes of ILCA (para. 656).		X		Joint programmes with IITA, ICRISAT, CIAT and IBPGR ensure the input of some crop expertise at some zonal sites, but more appears to be needed at others.
20. ... that the Programme Committee of the Board attend meetings with Management and senior research staff at the Centre at which programmes and the Centre's research strategy would be discussed (para. 659).	X			The Strategy document and Five-year Plan were the subject of joint Board Programme Committee/Management meetings at ILCA in 1987. Annual Programme Review and Planning meetings now involve the Programme Committee and ILCA's Management and scientific staff.
Animal Nutrition Research				
21. ... that ILCA's central and field-based scientists should consult closely to identify needs and to schedule analytical service requirements... (para. 118).	X			The Thrust Council and Common Interest Group meetings have addressed this matter. Analytical services are now scheduled on a more systematic basis.

22. ... that the laboratory should become a separate, largely self-sustaining cost centre with analysis [services] charged according to actual or imputed costs (para. 119).	X			Service laboratories in both nutrition and soils are now part of the Research Support Division. Analytical services are contracted and paid for by the requesting cost centres.
23. ... that training in laboratory techniques should be expanded... to accommodate technicians from national and university laboratories throughout Africa (para. 120).		X		ILCA has not offered formal courses on laboratory techniques, but the Technician Associate programme has provided training in various laboratory and field techniques for 88 individuals from 19 African countries during 1986-1990.
24. ... that Nutrition Section scientists... be encouraged to develop research experience in one or more ILCA or national programmes outside of Ethiopia, both in a consulting and a collaborative research mode (para. 123 and 635).		X		The Centre's animal nutrition expertise has been widely decentralized so that there is now only one animal nutrition scientist at headquarters. However, he does not travel much from HQ.
25. ... that the use of consultants should be part of the research programme planning with participation by other section scientists (para. 125).	X			Consultants have been used in the Thrust Planning meetings for the medium-term plan.
Forage and Crop Agronomy				
26. ... that arrangements be made for expertise in crop agronomy to be integrated into ILCA research teams either by ILCA including a crop agronomy capacity or by making appropriate arrangements with other IARCs (para. 66 and 627).		X		Such arrangements exist at Niamey.
27. ... that the Forage Agronomy Section strengthen its links with the zonal programmes and this should include joint research (para. 198 and 638).			X	ILCA is currently reducing its research effort in forage agronomy at HQ.
28. ... that such expertise... (in crop agronomy) be provided by ILCA staff or by cooperation with other IARCs, and the staff involved should be closely linked with the Forage Agronomy Section of the Plant Science Division (para. 199).		X		See recommendations Nos. 19, 26 and 27 above.
29. ... that the Soils and Plant Nutrition Section be encouraged to cooperate closely... with the zonal programmes (para. 211).		X		Research in this area was decentralized through an appointment to Niamey.

30. ... that the Management of ILCA should consider what should be the size of such a group... (working on rangeland ecology)... and its composition in relation to the ongoing activity and staffing for range and ecological studies in zonal programmes (para. 220).	X			In the strategic plan, this issue was addressed in the Livestock Policy and Resource Use Thrust. The research teams whose work now most closely relates to range ecology are at Niamey (crop/livestock interactions) and Bamako (range trends).
31. ...the Panel recommends that a vigorous program of plant introduction and testing should be continued to find other legumes which could also be used (para. 32).	X			A large number of accessions representing the <u>Stylosanthes</u> , <u>Centrosema</u> and <u>Chamaecrista</u> were introduced to the ILCA/Kaduna site and evaluated for adaptability and performance through multi-locational trials, large-scale grazing and integration of promising species.
32. ...Because of the importance of both food and fodder crops for improvement of the existing system, the Panel recommends that an experienced crop agronomist be included in the team (para. 385).			X	The recruitment was not made because the programme itself (Ethiopian Rangelands) was closed down.
33. ...Panel recommends that ILCA keep abreast of developments in the use of satellite imagery for refinement of early warning systems on drought (para. 650).			X	Work carried out in Ethiopia was discontinued.
Animal Reproduction and Health				
34. ... that the Animal Reproduction and Health Section work in close collaboration with the other sections of the Animal Science Division and with the Livestock Economy Division to improve reproductive efficiency of cattle, small ruminants and camels (para. 138).	X			Research workers from the Animal Reproduction and Health Section are now involved in multidisciplinary teams in the research thrusts, especially those relating to cattle milk and meat and small ruminant meat and milk. However, work on camels has been discontinued.
35. ... that the Section take advantage of the excellent training facilities available at headquarters to implement training courses for African specialists... (para. 139).	X			The Section has played an increasing role in ILCA's training.
36. ... that ILCA limit itself to those diseases which directly affect reproductive efficiency (para. 140).		X		Implemented, except that research on animal parasitism has continued to be a part of ILCA's programmes.

37. ... that the Section, in cooperation with national veterinary research institutions in Africa or elsewhere, assist in the development of suitable packages (para. 141).	X			ILCA has mainly worked with research institutions in Mali and Ethiopia.
38. ... that it develop suitable technical packages for the prevention and/or control of major reproductive diseases; packages which can be used by African smallholders and pastoralists with minimum support (para. 142).	X			This has been a central theme in ILCA's Cattle and Small Ruminant Thrusts but more effort is required.
39. ... that research on the principal constraints to reproductive efficiency of African livestock receives priority over studies of relationships between basic physiological parameters and animal behavior (para. 144).	X			
40. ... that... (the Section consider)... an interdisciplinary research effort to address the complex interactions among nutrition, health, management and genetics which affect reproductive efficiency (para. 636 and 637).	X			ILCA's multidisciplinary teams now address these issues.
Livestock Productivity and Trypanotolerance				
41. ... that the activities of the Group continue to be supported at the level necessary to accomplish the stated future plans (para. 164).	X			Implemented, although in the longer term, the Trypanotolerance Thrust may merge into the Cattle Milk and Meat and the Small Ruminant Meat and Milk Thrusts (see recommendation No. 42 below).
42. ... that Management encourage and facilitate the strengthening and/or establishment of more formal and closer links between the Livestock Productivity and Trypanotolerance Group and other ILCA units, especially the new Animal Reproduction and Health Unit and the Livestock Economics Division at headquarters and ... with the zonal programmes (para. 166).	X			Livestock productivity, reproduction and health and economics issues addressed in the trypanotolerance programme have been seen as integral parts of these commodity thrusts even in the short term. Economic assessment is now a central part of the Trypanotolerance Thrust (see recommendation No. 41 above).
Livestock Economy				
43. ... that the Division devote more attention to the micro-level work in the future (para. 235 and 640).		X		Micro-economic aspects of ILCA's research programmes have been emphasized to some degree.

44. ... that in undertaking research on policy issues, a determined effort must be made to find collaborating researchers, or preferably research institutes, in the study countries (para. 239).		X		Efforts have been made to establish these linkages through training courses on policy.
45. ... that there should be greater dialogue among the field teams in... (the methodology used for farm systems approach)... that the preparation of training manuals on the application of FSA receive high priority (para. 242).	X			Training manuals along the lines indicated have been published, but ILCA has not devoted resources to publications on the theoretical aspects of farming systems research methodology. However, a systems research manual has been published.
46. ... (that the Economics Division arrange) ... for an annual meeting of the economists from the field teams and headquarters to review the work of the past year, to examine critically the proposed work plans and to encourage an exchange of ideas (para. 243 and 640).		X		As in the other research thrusts, the Livestock Policy and Resource Use Thrust holds an annual internal review meeting, together with the Programme Committee of ILCA's Board of Trustees. Until 1991 when Common Interest Group meetings were instigated, specific meetings of economists have not been held regularly other than those associated with visits by the Head of the Livestock Economics Division to the zonal research sites.
Highlands				
47. ... that ILCA Management consider... steps designed to create and maintain... such interaction with central research units and, indeed, among the zonal programmes (para. 272).	X			The Highlands Programme encompasses Cattle Milk and Meat, Small Ruminant Meat and Milk, Animal Traction and Feed Resources Thrusts which facilitate the interactions between central and zonal sites.
Humid Zone				
48. ... that the role of Nigerian scientists in the design, implementation and analysis of on-farm research be expanded (para. 287).		X		Nigerian scientists, and those of other NARS, have been involved in the implementation and evaluation of research programmes in the zonal research sites, but more consultation is needed at the design stage.

49. ... that... (support capabilities)... should principally be improved through cooperation and collaboration with IITA and with local research institutions, facilitated by ILCA contracting for services rendered and/or contributing to the development and maintenance cost of the support capabilities (para. 289 and 642).		X		Aspects of collaboration with other international institutes have been addressed. Collaboration with IITA and with local institutions in Ibadan has not included contracting of work.
50. ... that top priority be given to the proposed alley farming network (para. 295).	X			Implemented jointly with IITA and ICRAF in the AFNETA network.
51. ... that IITA scientists should provide leadership in agronomic aspects of alley farming (para. 297).	X			IITA agronomists lead the AFNETA programme.
52. ... that ILCA scientific inputs to the research network activities must necessarily emphasize the livestock component and crop - livestock interactions, such as evaluating nutritional value from browse legumes (para. 298).	X			Research on browse legumes is part of the African Feed Resources Network.
53. ... that... (the group)... initiate collaborative research with the Animal Husbandry and Breeding Section to explore options for improving the genetic potential of ruminants adapted to the humid zone (para. 300).	X			This recommendation is in line with ILCA's work in the trypanotolerance, cattle and small ruminant thrusts.
Subhumid Zone				
54. ... that outreach activities be planned carefully to match the rate of development of knowledge and that every effort be made to contact appropriate organizations in other countries (para. 325).	X			ILCA's work in the subhumid zone is in the Cattle Milk and Meat, Animal Traction and Feed Resources Thrusts. Some of this work has been done in association with overseas scientists, notably those of CSIRO, Australia.
55. ... that a programme should be mounted to predict the superphosphate requirement... for new areas inside and outside Nigeria (para. 328).			X	This work was done but not at the Kaduna site.
56. ... further strengthening of staff at senior scientist level as a high priority for ILCA (para. 332 and 643).	X			The subhumid zone research site has been strengthened by the posting of agronomists, nutritionists and the coordinator of the Animal Traction Network.

57. ... that particular attention be paid to further agronomic work on additional fodder legume species and on fertilizer requirements... that care be taken in planning outreach activities (para. 643).	X			Implemented through work on forage-legume accessions for lowlands in West Africa.
Mali				
58. ... that ILCA's role be to stimulate development of health packages focussed on integrated nutrition, management and parasite control suited to the means of livestock owners (para. 356).			X	This recommendation, while accepted, has proved difficult to implement. The lack of sufficient financial resources by the partners in Mali has made it extremely difficult to establish meaningful programmes along the lines suggested by the 1986 EPR.
59. ... that joint visits to project sites be developed by the Sahel programme scientists and the East African Rangelands teams (para. 357).			X	This recommendation was not implemented because ILCA did not begin the East African Rangelands work, principally due to financial constraints and the high commitment required.
60. ... that ILCA's Management consider ... the possibility of extending its activities to the subhumid zones in Mali... (para. 359).		X		Implemented at Kaduna and Mombasa, but only selectively at the Mali site.
61. ... that ILCA Management consider ... the possibility of extending its activities to cover the more purely pastoral system in other areas of the Sahel, knowing that the payoff will be relatively modest (para. 360).			X	ILCA Management has considered this recommendation. However, ILCA does not propose to do site-specific work on pastoral systems in the short term.
62. ... that the programme improve its research planning in order to focus on fewer key issues. It endorses... the proposal for the Mali team to extend its activities to Mali Sud in order to test and adapt the technological package already developed by the subhumid programme in the Kaduna area (para. 645).		X		The recommendation that the work of the Mali programme be made more focussed was implemented. The extension to Mali Sud has been restricted by financial considerations and limited prospects for impact.
Kenya Rangelands				
63. ... that any component research work to test interventions derived from the system study be carried out in cooperation with Kenya's National Rangelands Research Programme (para. 402).			X	Not implemented because the Kenyan National Rangelands Research Programme was deferred.

64. ... that the decision on ILCA's participation in livestock research for small farmers in the Machakos area in cooperation with the NDRS Katumani should be deferred until the overall priorities for work in the new East African Rangelands Programme have been set (para. 403).	X			This work was deferred.
65. ... that in Kenya component research be carried out with staff of the National Range Research Programme... it should be possible to establish a new East African Rangelands multidisciplinary team, including extra skills such as crop agronomy, with the previous staff establishment (para. 648).			X	Not implemented. See response to recommendation No. 59 above.
Research Support				
66. ... that ILCA should not encourage establishment of regional or national satellite ground-receiving facilities under its jurisdiction (para. 435).	X			
67. ... that the current research activities involving calibration of NDVI and related radiation measurements be terminated (para. 436).	X			
Training and Information				
68. ... that provision be made for competence in training in the French language to support the Centre's training (para. 538).	X			Wherever possible, French-speaking specialists (from ILCA and NARS) are identified to teach courses in French.
69. ... that postdoctoral fellows should not come administratively under the Training Division nor be included in its budget (para. 540).			X	ILCA considers that continued administration of this programme by the Training Division is effective and avoids the establishment of the otherwise necessary administrative structures within the Research Department.
70. ... that ILCA's effort to expand training should emphasize the research aspects of its work (para. 541).	X			Individual and group training programmes are designed to enhance participants, research skills. All ILCA training is derived from ILCA's approved research programme.
71. ... that ILCA put priority on training in farming systems methodology (para. 542).	X			All training courses include a module on farming systems research.
72. ... that competence in French is essential for the Training Division (para. 653).	X			Two of the four staff members in the Training Programme Unit are fully bilingual.

**Appendix I.2. Assessment of ILCA's Progress in Implementing the Recommendations
of the 1986 External Management Review**

Recommendation	Implementation			Comments
	Full	Partial	None	
Chapter 2. Organizational Structure and Internal Communication				
1. ... that the question of re-establishing the post of Deputy Director General be carefully analyzed and resolved by the Board and the new Director General as soon as is feasible after he is in place.	X			In May 1987 the Board authorized the Director General to upgrade the post of Director of Research to that of Deputy Director General.
Chapter 3. Board of Trustees				
2. ... that secretarial services provided to the Board be substantially strengthened. <u>[Strong recommendation.]</u>	X			A Director of Donor and Board Secretariat has been appointed, who serves as Secretary to the Board.
3. ... that the Board carefully think through the planning of its annual meeting agenda to include as much of its deliberations in open sessions as is feasible.	X			
4. ... that ILCA develop its strategies through an open, collegial, participatory process that jointly involves both Management and the Board. <u>[Strong recommendation.]</u>	X			ILCA's strategy was developed at joint Board/Management/staff meetings.
5. ... that detailed reviews of ILCA's programmes be carried out by Management using an institutionalized process monitored by and satisfactory to the Board.	X			Annual Programme Planning and Review meetings have been institutionalized which involve ILCA staff, the Programme Committee of the Board, and NARS colleagues.
6. ... that both African and non-African Board members be chosen because, on the basis of a wide search, they are the best qualified individuals ILCA can identify.	X			The procedure for the nomination of Board members has been reorganized to incorporate EMR recommendation/suggestions and those from the "Dillon Report".
7. ... that the Board systematize the process by which it annually evaluates the performance of the DG, discusses it with him and determines his salary.	X			Implemented since May 1987.
8. ... that the Director General be invited annually to share with the Board (or an appropriate Board committee) his views concerning ways the Chairman's and the Board's effectiveness could be improved.	X			Implemented since May 1987.

9. ... that the Board review the procedures employed and the lessons learned from its current search for and employment of its next Director General.	X			A Board paper detailing the search procedure and selection of the current Director General is on file.
Chapter 4. Goal Setting, Planning and Review Process				
10. ... that ILCA, in its future strategic planning efforts, employ a process that ensures strong participation from the principal future implementors of the strategy.	X			Staff participated fully in the 1987 strategic planning process.
11. ... that ILCA make its annual in-house review an important stock-taking, communication, staff development, and forward planning exercise. <u>[Strong recommendation.]</u>	X			The Annual Programme Planning and Review meetings are structured in accordance with this recommendation (although some staff continue to feel that opportunities for scientific interaction/debate are too limited during these meetings).
Chapter 5. Human Resources Management				
12. ... that ILCA bring to early completion the process already begun (following the recommendations of the QQR) to prepare written descriptions of duties of all staff, with particular emphasis on staff just joining ILCA.	X			ILCA completed a revision of staff job descriptions and a staff classification exercise.
13. ... that two-year contracts be adopted for ILCA's professional staff, though retaining a probationary period as at present.	X			ILCA local professional and support staff now have two-year contracts with a one-year probationary period.
14. ... that ILCA institute procedures to improve the job security of support staff.	X			Staff rules have been clarified and longer-term (two-year) contracts instituted.
15. ... that Management take steps to improve the support staff performance evaluation process as soon as in-house professional capacity to do so is acquired.	X			
16. ... that ILCA speed the efforts already initiated in the area of classification of posts and staff.	X			Completed in 1987.
17. ... that a Board subcommittee keep track of key aggregate indicators of the overall effectiveness of the personnel function, using information provided by Management.	X			Monthly reports with key aggregate indicators on the personnel function are sent to all Board members.

18. ... that ILCA employ an appropriately qualified and experienced international staff member to head the Personnel Section. <u>[Strong recommendation.]</u>	X			A Personnel Manager was appointed in March 1987.
Chapter 6. Research and Field Management				
19. ... that ILCA establish a research review committee, to help guide the further evolution of the Centre's scientific programmes.	X			The Thrust Council provides the major mechanism for internal review and planning.
20. ... that ILCA strengthen the effort already being made to identify and support young African scientists who would most benefit from ILCA's challenging research environment.	X			ILCA had 13 Research Fellows (young African scientists working at ILCA for up to three months to pursue or complete a piece of research) from 1982 through 1986, and 19 from 1987 through 1991.
21. ... that ILCA strengthen its efforts to attract senior African scientists who can contribute to ILCA's programme, coming for short periods (2-6 months).	X			ILCA had six African Visiting Scientists from 1982 through 1986, and 10 from 1987 through 1991.
Chapter 7. Financial Management				
22. ... that ILCA Management, with the assistance of the Board, develop and implement a fund-raising strategy in an effort to expand its funding base and reduce the reliance on a few donors. <u>[Strong recommendation.]</u>		X		While an "umbrella" fund-raising strategy or policy has not been developed, a number of steps have been taken to solidify the Centre's funding base. Also, ILCA actively participates in the Centre Directors, funding strategy for the CGIAR.
23. ... that consideration be given by Management to the preparation of multi-year indicative budget plans as a basis for annual funding decisions and improved planning.	X			ILCA prepared a five-year programme and budget (1988-93) in conjunction with its strategy.
24. ... that consideration be given to implementing a system of periodic reviews of benefits and costs of programmes for improving research operations and prioritizing research activities.	X			ILCA now has indicators of performance on all research protocols, that are supplemented by reports on budget outcomes.
25. ... that ILCA develop and implement a programme-based budgeting system. <u>[Strong recommendation.]</u>	X			Implemented in 1987.

26	that ILCA adopt a modified system of project costing which would not require elaborate accounting, and yet generate the data required for research management and decision-making.	X			A system of project costing has been developed as part of the programme-based budgeting system.
27.	... that the annual budget submission memoranda be improved to ensure a more meaningful review of budget submissions.	X			
28.	... that authority to commit expenditures should be set out for various levels of staff so that the managers of each cost centre can incur certain expenditures in accordance with their authority and budget without prior approvals.	X			
29.	... that in future years the decisions on which field programmes should be audited and the scope of the audit work to be carried out should be left to the discretion of the external auditors.		X		Implementation has followed the report of the external auditors to the Board in May 1987. Financial restraints have limited the scope of the external audit function. The internal audit of the sites has been expanded.
30.	... that the Management appoint an internal auditor, with full-time responsibilities to carry out an appropriate and comprehensive programme of internal auditing at the Centre. [Strong recommendation.]	X			Implemented in 1987.
31.	... that the Audit Committee, in its regular periodic meetings with the external and internal auditors, place increased focus on ascertaining the efficiency and effectiveness of the internal auditing function, and on ensuring that appropriate systems exist for the implementation and follow-up of audit recommendations.		X		The Audit Committee has made some progress in this area but still needs to focus on efficiency and effectiveness of the internal auditing function and on monitoring the follow-up of audit recommendations.
32.	... that the Management reassess its current investment strategies and policies to consider a broader range of investment instruments and maturities.	X			In May 1987 the Board opted to continue the conservative investment policy; in May 1991 they agreed that the range of investment instruments should be broadened.
Chapter 8. Information Management					
33.	... that ILCA limit itself to networks which have active participation by members and ample administrative resources or a high degree of donor interest capable of supplying such assistance as the network expands.		X		The prospects of donor support are uncertain.
34.	... that ILCA seek added resources to strengthen bilingual capacity throughout its programmes.		X		Progress has been made through staff training in languages, but ILCA has not attracted special funds for more comprehensive and timely translation of ILCA publications.

Chapter 9. Administration and Headquarters				
35. ... that ILCA realign the Administration Department functions and appoint a professional to handle certain functions now reporting directly to the Head of Administration, including liaison with field programmes.		X		Realignment has occurred. A Research Operations Manager was appointed, in the office of the Deputy Director General (Research), with responsibility for liaison with field programmes. The Head of Administration position is vacant.
36. ... that the resource planning for a programme of priority construction, as agreed with the Board, should be carried out sufficiently in advance to allow time for tendering in view of shortage of materials and suitable contractors.	X			By preparing preliminary capital construction plans immediately after the October Programme Planning meeting, the tendering process has been advanced.

APPENDIX II

SECOND EXTERNAL PROGRAMME AND MANAGEMENT REVIEW OF ILCA PANEL COMPOSITION AND BIOGRAPHICAL INFORMATION

Chairman

Mr. Norman J. Halse
156 Lockhart Street
Como
W.A. 6152
AUSTRALIA

Dr. David W. Norman
Professor
Department of Agricultural Economics
Waters Hall
Kansas State University
Manhattan, KS 66506
U.S.A.

Members

Dr. Jozef Deckers
Associate Professor
Faculty of Agricultural Sciences
Institute for Land and Water
Management
Katholieke Universiteit
Vital Decosterstraat 102
3000 Leuven
BELGIUM

Dr. Julie A. C. Virgo
Executive Vice-President
The Carroll Group, Inc.
73 E. Elm Street, Suite 11A
Chicago, IL 60611
U.S.A.

Dr. Dirk Zwart
Professor
Department of Tropical Animal
Production
Wageningen Agricultural University
Marijkeweg 40
6709 PG Wageningen
THE NETHERLANDS

Dr. Jacob E. Hautaluoma
Professor and Associate Dean
College of Natural Sciences
Colorado State University
Fort Collins, CO 80523
U.S.A.

Resource Persons

Mrs. Pilar San Jose
The World Bank, D-1247
1818 H Street, N.W.
Washington, D.C. 20433
U.S.A.

Dr. Anselm B. Lwoga
Vice-Chancellor
Sokoine University of Agriculture
Chuo Kikuu
P.O. Box 3000
Morogoro
TANZANIA

Dr. Eric T. Craswell (Panel Secretary)
TAC Secretariat
FAO
Via delle Terme di Caracalla
Rome 00100
ITALY

Dr. Walter N. Masiga
Director
OAU/IBAR
P.O. Box 30786
Nairobi
KENYA

Ms. Elizabeth M. Field
CGIAR Secretariat
The World Bank, N-5061
1818 H Street, N.W.
Washington, D. C. 20433
U.S.A.

BIOGRAPHICAL INFORMATION

Name: Norman J. Halse (Australia)

Present position: Consultant.

Specialization: Agronomy, Research Management.

Education: B.Sc. Agriculture (1951); M.Sc. Agriculture (1957), University of Western Australia.

Experience: 1951-1970: Studies in Agronomy and Crop Physiology of tobacco and wheat, Western Australian Department of Agriculture; 1970-1982: Director of Plant Research responsible for agronomy and plant protection research for all crops and pastures; 1983: Member, Premier's Task Force on Natural Resources Management, Western Australia; 1984-1990: Director General, Western Australian Department of Agriculture. Australian co-director of Dryland Farming Development projects in Libya (1974-84), Nigeria (1977-80) and Iraq (1980-84); Australian co-director of ACNARP project, building regional agricultural research capacity in Thailand (1984-90). Member of QQR of ICARDA (1983) and Second EPR of ILCA (1986); Member, Board of ICARDA (1987-present). Environmental interests: Chairman, National Parks and Nature Conservation Authority (1984-1991). Member, Environmental Protection Authority of Western Australia (1990-present). Awarded Member, Order of Australia (1990).

Name: Jozef August Deckers (Belgium)

Present position: Associate Professor of Soils Geography, Land Evaluation and Soil Conservation, Institute of Land and Water Management, Catholic University of Leuven (KU Leuven), Belgium.

Specialization: Land Evaluation.

Education: Agricultural Engineer, KU Leuven (1974); Ph.D. Land Evaluation, KU Leuven (1978).

Experience: 1978-80: Research Assistant, Laboratory for Land Management, KU Leuven; 1980-85: Soil Chemist and Soil Fertility Specialist for the FAO Land and Water Division, based at Mtwara, Tanzania; 1985-89: Plant Nutrition and Soil Fertility Agronomist for FAO Land and Water Division, based at Addis Ababa, Ethiopia; 1989-present: Associate Professor, KU Leuven. Supervision of overseas development projects, consultant for FAO Land and Water Division, Visiting Professor for Soil Physics at the Dschang University in Cameroun. Author or co-author of 49 scientific publications.

Languages: Dutch, English, French, German, Swahili.

Name: Jacob E. Hautaluoma (USA)

Present position: Professor of Industrial and Organizational Psychology, and Associate Dean, College of Natural Sciences, Colorado State University.

Specialization: Organizational Behaviour, Social Psychology.

Education: B.A., University of Minnesota, Duluth (1955); Ph.D. Social-Personality Psychology, University of Colorado (1967); Postdoctoral Fellow, Administrative Sciences, Yale University (1971-72).

Experience: 1955-60: Industrial Engineer, U.S. Steel, Duluth, Minnesota; 1965-present: Professor and Associate Dean, Colorado State University; Summers 1972, 1973, 1976: Visiting Professor at University of Minnesota, Duluth, Oregon State University, and University of Hawaii. Summers 1967-1971 and 1975: Training Project Coordinator and

Trainee Development Officer, U.S. Peace Corps in Afghanistan, Micronesia, Malaysia, and Morocco; 1977 & 1980: Fulbright Lecturer, University of Iceland and Helsinki, School of Economics; 1986-1987: Program Associate, Division of International Programs, National Science Foundation. Consultant on organization behaviour management to many organizations. Panel member and panel leader for AID-sponsored EPRs of the IFDC (1983 and 1990). Panel member of EMR of ICARDA (1988). Author or co-author of 35 research publications. Awards for graduate teaching, research, and advising.

Name: Anselm B. Lwoga (Tanzania)

Present position: Professor of Pasture Agronomy and Vice-Chancellor, Sokoine University of Agriculture, Tanzania.

Specialization: Pasture Agronomy, Animal Production.

Education: B.Sc. (Agriculture), Makerere University, Uganda (1971); Ph.D. University College of Wales, Aberystwyth (1975); Postdoctoral Fellow, University of Hawaii (1980).

Experience: 1971-84: Tutorial Assistant, Lecturer, Senior Lecturer, Associate Professor, then Dean, Faculty of Agriculture, Forestry and Veterinary Science, University of Dar-es-Salaam; 1984-present: Associate Professor, Dean, Deputy Vice-Chancellor then Vice-Chancellor, Sokoine University of Agriculture. Chairman, Commission for Review of Tanzania Research Organizations (1984-85). Chairman, Steering Committee, Pasture Network for Eastern and Southern Africa (PANESA) (1984-89). Tanzania Pesticides Research Organization (1990-present). Member of a number of national and regional committees, boards and task forces, and important Sokoine University of Agriculture committees. Author or co-author of 28 technical/scientific papers.

Name: Walter N. Masiga (Kenya)

Present position: Director, Organization of African Unity/Inter-African Bureau For Animal Resources (OAU/IBAR), Nairobi, Kenya.

Specialization: Veterinary Science, Bacteriology - Mycoplasmaology-Immunology.

Education: B.V. Sc., University of East Africa (1967); Academic Diploma in Bacteriology (Dip. Bact.), University of London (1969); Ph.D., University of Nairobi (1973).

Experience: 1967-69: Veterinary Research Officer (Trainee); 1969-72: Veterinary Research Officer; 1972-73: Senior Veterinary Research Officer; 1973-74: Principal Veterinary Research Officer; 1974-76: Deputy Director/Principal Scientist; 1976-84: Director/Chief Scientist, East African Veterinary Research Organization (EAVRO) Muguga. 1985-to present: Director OAU/IBAR. Member, Expert Panel, Contagious Bovine Pleuropneumonia (CBPP), at-large member, International Organization of Mycoplasmaologists. Member, Advisory Committee, Winrock International Study on Assessment of Animal Agriculture in sub-Saharan Africa. Chairman, Kenya Veterinary Association for eight consecutive years and member, Kenya Veterinary Board for two consecutive terms. Consultancies for FAO, WHO, UNESCO and IDRC. Special lecturer at the University of Nairobi Veterinary School (1969-1981). Author or co-author of more than 50 scientific publications: Delivered leading invited papers at international conferences/symposia.

Name: David W. Norman (UK)

Present position: Professor of Agricultural Economics, Kansas State University, USA.

Specialization: Agricultural Economics, Farming Systems Research.

Education: NDA (Agriculture), Royal Society of Agriculture, (1962); B.Sc. (Agriculture), University of London, UK (1962); M.Sc. (Agricultural Economics), Oregon State University, (1963); Ph.D. (Agricultural Economics), Oregon State University (1965).

Experience: 1965-76: Research Fellow then Professor and Head of the Rural Economy Research Unit and Department of Agricultural Economics and Rural Sociology, Ahmadu Bello University, Zaria, Northern Nigeria; 1976-82: Associate Professor then Professor, Department of Agricultural Economics, Kansas State University, Manhattan, Kansas; 1982-90: Chief of Party, Agricultural Technology Improvement Project, Ministry of Agriculture, Gaborone, Botswana; 1991-present: Professor, Department of Agricultural Economics, Kansas State University, Manhattan, Kansas. Frequent consultancies (reviews, designs of projects and programmes) for various donor agencies and CGIAR institutions. Also participated in many CGIAR institution-sponsored workshops and seminars (e.g. CIAT, CIMMYT, CIP, ICRISAT, IITA, IRRI). Member of Second EPR of ILCA (1986). Published extensively (more than 100 papers). President-Elect, International Association of Farming Systems Research and Extension.

Name: Julie A. C. Virgo (Australia)

Present position: Executive Vice-President and Chief Operating Officer of The Carroll Group, Inc. (management consultants).

Specialization: General Management, Information Management, Organizational Behavior.

Education: Registration Certificate of the Library Association of Australia (1964); M.A. Library and Information Science, University of Chicago (1968); Ph.D. Sociology of Science, University of Chicago (1972); M.B.A., Executive Program, University of Chicago (1983).

Experience: 1961-66: Director of Libraries, Repatriation General Hospital, Adelaide, South Australia; 1968-72: Assistant Director, Health Sciences Librarianship Training Program, University of Chicago; 1968-90: Senior Lecturer in Financial and Cost Accounting, Graduate Library School, University of Chicago; 1972-77: Director of Education, Medical Library Association, Chicago; 1977-84: Executive Director and CEO, Association of College and Research Libraries, Chicago; 1986-90: Visiting Professor in financial and cost accounting at the University of Michigan and the John F. Kennedy School of Management, Orinda, California; 1984-present: Executive Vice-President and Chief Operating Officer, The Carroll Group, Inc., Ann Arbor, Michigan. Member of the Board of Directors of seven national and international organizations. Consultant to the U.S. Federal Government for the Department of Education, National Science Foundation, National Center for Educational Statistics, National Commission of Libraries and Information Science and National Endowment for the Humanities. Author or co-author of 25 research articles and books. Keynote speaker at international conferences. Awards in the field of information science.

Name: Dirk Zwart (Netherlands)

Present position: Professor, Tropical Veterinary Medicine, Faculty of Veterinary Medicine, Utrecht and Professor, Tropical Animal Production, Agricultural University, Wageningen.

Specialization: Tropical Animal Diseases, Interaction of Animal Production with Animal Diseases.

Education: Doct. Vet. Med., University of Utrecht (1954); Ph.D. Vet. Med., University of Utrecht (1962).

Experience: 1955-1958: District/Provincial Vet. Officer, Irian Yaya, Indonesia; 1959-1964: Senior Lecturer, Animal Science, Faculty of Agriculture, Kumasi, Ghana; 1964-1966: Senior Virologist, Veterinary Research Laboratory, Vom, Nigeria; 1966-1986: Professor, Tropical Veterinary Medicine; 1986-present: part-time Professor, Tropical Veterinary Medicine, University of Utrecht; and 1986-present: Professor, Tropical Animal Production, Agricultural University, Wageningen; 1981: Sabbatical leave, Acting Director General, ILRAD. Board member in various functions of ILRAD (1973-1982). Consultant for Dutch Technical Aid, FAO, EEC, and World Bank to various countries, mainly in Africa and Asia, in the field of tropical animal production and health.

**TERMS OF REFERENCE FOR EXTERNAL REVIEWS
OF CGIAR CENTRES**

1. BACKGROUND

The Consultative Group on International Agricultural Research (CGIAR) has charged its Technical Advisory Committee (TAC) with the responsibility of conducting External Programme Reviews (EPRs) of those International Agricultural Research Centres (Centres) that it supports financially. The CGIAR has assigned a similar responsibility to its Secretariat for External Management Reviews (EMRs).

TAC and the CGIAR Secretariat normally discharge these responsibilities by commissioning either separate panels or a joint panel to conduct the reviews. In commissioning panels, neither TAC nor the CGIAR Secretariat delegates its responsibility for reviews, but both use panels to facilitate the process. Panels submit their reports for consideration by TAC and the CGIAR Secretariat before they are transmitted to the CGIAR. While the main recommendations made by panels are normally endorsed both by TAC and the CGIAR, such endorsement cannot be presumed by either the panels or the Centre under review. Equally, as autonomous institutions, Centres are not obliged to implement the endorsed recommendations. In practice, however, they usually implement most, if not all of them.

2. PURPOSE

Through its support of International Centres, the CGIAR aims to contribute to increasing sustainable crop, livestock, fish and tree production in developing countries in ways that improve the nutritional level and general economic well-being of low-income people. The purpose of external reviews is to help to ensure that the Centres continue to implement strategies and programmes that are relevant to these goals; that they maintain or enhance their record of achievement; and that they are efficiently managed. In these ways, external reviews reinforce mechanisms of accountability within the System.

EPRs and EMRs are also essential components of the CGIAR's integrated planning process. The context in which they are undertaken is to be found in the document "Review Processes in the CGIAR".

3. THE REVIEW

Against this background, the panel is requested to make a thorough and independent appraisal of the Centre and all its activities, following the broad topics below, as well as the appended list of questions and guidelines. Panels are encouraged to set their findings in the broader context of the CGIAR System, where this is relevant to the activity or programme under review.

A. Recent Evolution of the Centre

Important changes affecting the Centre since the previous external review.

B. Mandate

The continuing appropriateness of the Centre's mandate in relation to the mission and goals of the CGIAR.

C. Strategy and Programmes

The policies and strategies of the Centre, their coherence with CGIAR strategies, and the mechanisms used for monitoring and revising them.

The extent to which the Centre's strategy is reflected in its current programmes; the rationale for any proposed changes by the Centre and their implications for future activities.

The quality of current programmes and activities.

D. Centre Guidance, Values and Culture

The overall effectiveness of the Centre's Board of Trustees in governing the Centre, and the effectiveness of leadership throughout the Centre.

The Centre's guiding values and culture, and their influence on the Centre's performance.

E. Programme Organization and Management

The mechanisms in place at the Centre to ensure the excellence of the programmes and cost-effective use of resources.

The adequacy of the Centre's organizational structure, and the mechanisms it uses to manage and coordinate its research programmes and related activities.

F. Resources and Facilities, and their Management

The financial resources available to the Centre in relation to its present and future programmes.

The land, laboratories and services available for supporting the programmes.

The Centre's human resources.

The Centre's information resources and facilities.

G. External Relationships

The Centre's relationships with national research systems ¹ in developing countries.

Collaboration with advanced institutions in research and training, in both the public and private sectors.

Collaboration with other CGIAR Centres and international agricultural research institutions, and undesirable overlap of activities.

The Centre's relationships with the government of its host country or countries and with institutions therein.

H. Achievements and Impact

The Centre's overall impact, its contribution to the achievement of the mission and goals of the CGIAR, and the methods used for making such assessments.

Recent achievements of the Centre in research and other activities.

The potential of the Centre's current and planned activities for future impact.

4. THE REPORT AND RECOMMENDATIONS

Panels are requested to prepare succinct reports in plain language (understandable to non-technical readers), in which factual material is kept to the minimum necessary to set the conclusions in context. Reports should include clear endorsements of the Centre's activities where appropriate, as well as recommendations and suggestions for changes.

Recommendations should be justified by the analysis and approved by panel members. Recommendations for increases in staff or activities should be accompanied by analyses of their resource implications. Reports should be formally transmitted to the Chairman of TAC and the Executive Secretary of the CGIAR by panel Chairs.

¹ National research systems include all those institutions in the public and private sectors, including universities, that are potentially capable of contributing to research related to the development of agriculture, forestry and fisheries.

LIST OF QUESTIONS

These questions supplement the Terms of Reference and illustrate the types of questions the panel should consider in each category. They apply to most, but not necessarily to all CGIAR Centres. In addition, TAC and the CGIAR Secretariat compiled a short list of questions that are specific to the Centre under review. In preparation for the review, the questions were circulated to the members of the CGIAR and the Centre inviting them to comment and, if considered essential, to add supplementary questions. The panel is not required to answer all questions explicitly, but to take them into account in making its own assessment of the most important ones.

A. Recent Evolution of the Centre

1. What important changes have taken place in the Centre since the previous external review? What were the principal reasons for change? What are the likely effects of these changes on the future performance of the Centre?
2. How responsive was the Centre to the previous review?

B. Mandate

3. How appropriate are the Centre's operational mandate and mission statement in relation to the changing mission and goals of the CGIAR?
4. How well do the present and planned activities of the Centre relate to the mandate and the mission of the Centre?

C. Strategy and Programmes

5. Does the Centre have an up-to-date and well-reasoned strategy statement? In particular, does it:
 - (a) reflect a thorough understanding of the needs of the Centre's principal clients and of the relevant activities of its partners and collaborators?
 - (b) take into account the major changes expected to occur in the Centre's external environment?
 - (c) spell out the Centre's aims and objectives in different programme areas and provide a clear justification for them?
 - (d) take into account the Centre's internal strengths and weaknesses and the financial constraints likely to be faced?

- (e) provide a clear justification for the future scale of the Centre's operations?
- 6. Are national authorities satisfied with the Centre's strategy and did they have adequate opportunity to contribute to its formulation?
- 7. Does ILCA's strategic plan focus on those constraints which are amenable to solution through research and promise high payoff? Is the focus of ongoing work sufficiently farming systems oriented to ensure relevance to target problems?
- 8. Does ILCA allocate an appropriate proportion of resources across agro-ecological zones? Is the proportion of strategic, applied and adaptive research appropriate?
- 9. Can livestock research be conducted in isolation from crops research? How has ILCA cooperated with IITA, ICARDA, ICRISAT and CIAT in conducting research on crop - livestock interactions?
- 10. Does the Centre's allocation of resources to its programmes reflect the priorities appropriately? Are the planned directions and priorities within programmes appropriate?
- 11. Does the Centre's strategy sufficiently take into account the determinants of sustainable production, the alleviation of poverty and preservation of the quality of the environment?
- 12. What proportion of the efforts of ILCA's economists should be assigned to production, post-production and policy areas? Are ILCA's social scientists playing an appropriate role in ILCA's multidisciplinary teams?
- 13. Has the Centre analyzed the operational implications of its future strategy and priorities in terms of finance, staff and other aspects?
- 14. How well is the Centre's current strategy reflected in its programmes and activities?
- 15. How successful has the Centre been in reaching its major objectives in each major programme area since the previous external review? Have the approaches adopted been the most appropriate for the problems to be solved? What has been the quality of the Centre's work in each programme area?
- 16. How effectively does the Centre's training programme meet the needs of national research systems?

17. How much attention has the Centre paid to gender considerations in planning and implementing its programme activities? Is this adequate?
18. Does the Centre give appropriate attention to post-harvest technology?
19. Has the Centre made adequate provisions from its core funds for work on genetic resources? How effectively is this work exploited for the benefit of developing countries?

D. Centre Guidance, Values and Culture

20. Is the Centre's legal status appropriate for fulfilling its mission?
21. How effective has the Centre's board been in determining policy and providing oversight? How effective has it been in managing its internal affairs (e.g. planning, internal board structure, member selection and development, managing meetings, etc.)?
22. Are board-management relationships based on openness, respect for each other's roles, and mutual trust? Does the board regularly assess and provide feedback on the performance of the director general on the basis of explicit and objective criteria?
23. How effectively has the Centre been led by the director general and the management team since the previous external review? How well do senior managers work as a team?
24. What principal guiding philosophies appear to shape the action of the board, management and staff? Are they conducive to high performance? (Among others, consider attitudes towards creativity, accountability, efficiency, and organizational change.)
25. What are the main features of the Centre's current organizational culture? Do aspects of this culture serve as barriers to performance? Is the Centre's organizational culture in harmony with its strategy, structure and management practices?

E. Programme Organization and Management

26. Has the Centre developed an organizational structure suited to good programme performance? What coordination mechanisms are in place? Are they effective? Are there alternative structures that could serve the Centre better in the future in the light of the Centre's strategy?

27. How effectively are the Centre's decentralized activities linked with those at the headquarters? Do the staff outside the headquarters have adequate opportunities to contribute to overall planning and decision making?
28. How effective are the Centre's strategic and operational (i.e. medium-term and annual) planning processes? How well are they linked to budgeting? Do these processes ensure sufficient consideration of the views of the Centre's clients and other key stakeholders?
29. Does the Centre have an effective planning and management system for projects or activities?
30. How effective are the Centre's programme monitoring and internal review systems and processes? Does the Centre have an effective peer review or a similar quality control process?
31. Do staff work effectively in teams? Do the structure and operating procedures of work groups facilitate cooperation and teamwork?
32. How is ILCA dealing with development in biotechnology and associated issues of intellectual property rights, genetic conservation and the role of the private sector?
33. Do the Centre's programme organization and management processes ensure efficiency and internal accountability? Are they conducive to innovation?

F. Resources and Facilities

34. How effective has the Centre been in organizing, staffing and managing its human, financial, administrative and information resources?

Human Resources

35. Has the Centre been able to attract and retain international and local staff of the highest calibre? Is the turnover rate one that ensures programme continuity as well as healthy infusion of new staff into programmes?
36. Does the Centre have appropriate personnel policies for international and local staff stationed at the headquarters and outside it? Are they seen to be fair and consistent? (Consider policies for staff recruitment, orientation, compensation, performance planning and assessment, career development, tenure, spouse employment, retirement, etc.)

37. Does the Centre actively promote recruitment, retention and career development of women? Are there barriers to women's advancement in the Centre?
38. How successful are managers and supervisors in managing people? In particular, how skillful are they in planning, coordinating and delegating work, communicating effectively, and motivating, developing and rewarding staff?
39. How satisfied are staff at all levels with their jobs? How are morale, trust, communication and teamwork perceived among the staff?

Finance

40. How successful has the Centre been in securing funds for its activities? How stable is the Centre's funding? Does the Centre have a fund-raising strategy, and how effectively is fund-raising managed?
41. Does the proportion of the Centre's budget received as restricted funding distort the Centre's strategy and the priorities accorded to its various activities?
42. How effective are the systems and processes used for financial management of headquarters and field operations? (Consider financial planning, analysis, reporting and control, accounting, budgeting, internal and external auditing, and cash and currency management.)
43. How strongly is financial management linked with programme management? How much financial responsibility do the programme staff have?

Administration

44. How successful has the Centre been in establishing an administrative infrastructure that meets the needs of staff in an efficient manner?
45. How cost-effective are the systems and policies used for managing the Centre's:
 - property (e.g. maintenance, development, construction, rental);
 - general services (e.g. security, housing and dormitories, food services, transport, travel services);
 - procurement operations (e.g. foreign and local purchasing, receiving, stores)?

Information

46. How successful is the Centre in acquiring, generating and managing the information it needs for decision-making, communication and integration of activities?
47. How effectively are information services and technology managed? (Consider computerization, telecommunications, records management, archives, library, and documentation.)

G. External Relationships

48. How successful has the Centre been in managing its relations with:
 - clients in developing countries;
 - institutions in the host country of its headquarters and of its substations in other countries;
 - public and private sector institutions in developed and developing countries (including other CGIAR Centres);
 - donors, the CGIAR and TAC;
 - the media and the general public?
49. Is the Centre's strategy for collaboration with national research systems appropriate, considering the sizes and stages of development of these systems? Are the priorities for collaborative work accorded to individual countries (in particular, the host country) appropriate? Does the Centre actively promote a strategy of collaboration in international research with national systems and regional research organizations?
50. Should the plan to amalgamate ILCA with ILRAD be revived? Would ITC be an appropriate field station of the larger centre?

H Achievements and Impact

51. What mechanisms does the Centre have in place to monitor its achievements and impact? Are these adequate?
52. How does the need to demonstrate impact influence the Centre's priorities and strategies? Is there a tendency for long-term considerations to be sacrificed for short-term gains?

53. What have been the most notable achievements of the Centre since the previous external review?
54. What benefits have developing countries derived from the Centre's work since the previous review? What contributions has the Centre made to strengthening national research systems through training, institution building, collaborative research and technical assistance?
55. What is the Centre's potential for further impact, given its planned activities? Do these justify continued donor support for the Centre? Is there a case for increasing the Centre's funding level? Could funding be reduced without seriously affecting the Centre's potential for further impact?

**CONDUCT OF THE REVIEW AND LIST OF INSTITUTIONS VISITED AND
INDIVIDUALS MET BY THE REVIEW PANEL**

Conduct of the Review

The External Review was commissioned in October 1989. The Panel Chairman and candidates for the Panel were agreed between TAC, the CGIAR Secretariat and ILCA Management. The ILCA Review was scheduled just before the External Review of ILRAD, and the members of the two Panels were selected on the basis that one Panel member would serve on both Panels.

In May 1991, the Chairman of the Panel, one Panel member and the Resource Person from the CGIAR Secretariat attended the Nairobi meeting of the ILCA Board of Trustees as observers and consulted with ILCA Management about the Review programme. The full Panel met first in Nairobi on 30 September 1991 when they were briefed on the Review process and on ILCA's programmes. They then spent four days in Kenya visiting the ILCA zonal site at Mombasa and institutions in Nairobi. (Details of the institutions visited and individuals met in Kenya and other countries are given below.)

The Panel travelled to ILCA HQ and spent the period 4-12 October attending the Biennial Meeting between ILCA and Leaders of Livestock Research, Training and Development in SSA and the ILCA Annual Programme Review and Planning meetings. The Panel also looked over the laboratories and facilities at HQ and visited experimental sites including Debre Zeit, Debre Berhan, Holetta and Ginchi. During these visits many ILCA staff were interviewed individually and in groups. On 12 October the Panel split into three groups. One group visited zonal sites at Bamako and Niamey; one visited the ILCA Liaison Office in Harare; and the third visited zonal sites in Ibadan and Kaduna. On each of these visits ILCA staff (at all levels) and cooperating NARS and IARC scientists were interviewed.

The main phase of the Review took place during 6-25 January 1992. The Panel members conducted further interviews with staff at ILCA HQ and selected staff members from zonal sites who were asked to visit HQ. In addition, the Panel studied the volumes of material prepared by the Centre for the Review, along with the results of a survey conducted of NARS leaders (concerning the programmes of ILCA and ILRAD, done in conjunction with the ILRAD Review, see Appendix V), a survey of ILCA Board members (concerning their roles and responsibilities and how they conduct their business), and a confidential survey of former staff. During the main phase regular consultations were held with ILCA Management, who were also given the opportunity to comment on errors of fact in the draft of the Report before it was finalized.

LIST OF INSTITUTIONS VISITED AND INDIVIDUALS
MET BY THE REVIEW PANEL¹

1. ETHIOPIA

Ginchi - 8/10/91

Ministry of Agriculture

Mr. G. Menota, District Head

Institute of Agricultural Research

Mr. H. Regassa, Vertisol Project Team Leader

Mr. Worku, Technical Coordinator

Mr. Kende, Technical Assistant

Addis Ababa - 11/10/91 and 22/1/92

Ministry of Agriculture

Dr. Awotahegn Alemayehu, Vice-Minister

Institute of Agricultural Research

Dr. Seme Debela, General Manager

2. KENYA

Nairobi - 1 and 4/10/91

Kenyan Agricultural Research Institute

Dr. C. G. Ndiritu, Director

Dr. J. D. Wachira, Deputy Director, Livestock Research

Dr. N. K. Cheruiyot, Assistant Director, Range Management

Dr. A. N. Abate, Assistant Director, Animal Production

Dr. J. S. Wafula, Assistant Director, Animal Health

International Laboratory for Research on Animal Diseases

Dr. R. Gray, Director General

Dr. J. Doyle, Deputy Director General

Mr. K. Geerts, Director of Administration

Dr. A. J. Teale, Trypanosomiasis Programme Leader

Dr. V. Nantulya, Senior Scientist

Dr. S. Kemp, Scientist

Dr. E. Authie, Scientist

Dr. A. S. Peregrine, Scientist

Dr. B. Perry, Economist

¹ This list does not include the many ILCA staff who were interviewed at HQ and at field sites.

Dr. A. Mukhebi, Economist
Mr. S.G.A. Leak, Research Associate

International Centre for Insect Physiology and Ecology

Dr. P. B. Capstick, Deputy Director
Dr. S. Mihok, Senior Research Scientist
Dr. A. J. O. Amoo, Research Scientist
Mrs. R. Odingo, Chief Planning Officer
Dr. L. Mudubunyi, Senior Research Scientist
Ms. R. Washika, Principal Communication Officer
Dr. G. D. Kaaya, Programme Leader, LTRP

International Centre for Research on Agroforestry

Dr. O. P. A. Sanchez, Director General
Dr. P. Cooper, Director of Research
Ms. E. Zulberti, Director, Training and Information
Dr. B. Scott, Senior Programme Coordinator

Mombasa - 2-3/10/91

KARI Regional Research Centre, Mtwapa

Mr. W. K. Malinga, Director
Mr. J. Mureithi*, Forage Agronomist and Head of Livestock and Pasture
Section
Mr. A. Ali, Range Ecologist
Mr. M. Njunie, Forage Agronomist
Ms. R. Muinga*, Animal Nutritionist
Mr. S. Maloo*, Veterinarian
* ILCA Graduate Associates

3. MALI

Bamako - 17-18/10/91

Ministère de l'Agriculture de l'Elevage et de l'Environnement

Mme. S. M. Ba, Ministre
M. A. Diallo, Conseiller Technique

Institut d'Economie Rurale

Dr. M. Goita, Directeur Général
Mr. D. Diamoutene, Directeur Adjoint
M. F. Mariko, Chef, Département Planification, Economie Rurale
H. Dicko, Chef, Direction du Département Recherche Zootechnique

Centre de Recherches Zootechniques

Dr. M. Togola, Directeur
M. B. Ouologuem, Nutritioniste
M. M. D. Traoré, Vétérinaire Epidémiologiste
M. M. Diarra, Zootechnicien

M. A. K. Haidara, Zootechnicien
M. M. N'Diaye, Vétérinaire
M. B. Diarra, Biochimiste
M. M. Sylla, Vétérinaire
M. S. Diallo, Chef, Section Génétique-élevage
M. B. Traoré, Zootechnicien
M. S. F. Traoré, Agropastoraliste
Mme. A. R. Kone, Nutritioniste
M. A. B. Cissé, Vétérinaire

Station d'Elevage et de Recherche Zootechnique

M. M. Traoré, Directeur
M. K. Cissoko, Economist d'Agriculture
M. M. Coulibaly, Eleveur

Office Malien du Betail et de la Viande

M. M. Sangare, Zootechnicien
M.O. Sadou, Directeur Général Adjoint

Direction de l'Elevage et de la Production Animale

M. G. Timbo, Directeur
M. A. Djiro, Chef, Section Suivi des Projets

Laboratoire Central Vétérinaire

M. B. Seck, Directeur
M. B. Kouyate, Chef de Division Diagnostic Recherche

Operation Développement Elevage Mopti

Dr. N. Diakite, Directeur

ICRISAT Bamako Office

Dr. S. N. Lohani, Principal Millet Breeder/Team Leader
Dr. S. Debrah, Principal Economist
Dr. P. Salez, Principal Agronomist/CIRAD Team Leader

4. NIGER

Niamey 14-16/10/91

ICRISAT Sahelian Centre

Dr. R. Gibbons, Executive Director
Dr. C. Renard, Head, Resource Management Programme
Dr. K. Kumar, Head, Pearl Millet Improvement Programme
Dr. B. Ndunguru, Head, Groundnut Improvement Programme
Dr. M. Sivakumar, Agroclimatologist
Dr. A. Batiano, Soil Chemist, IFDC
Mr. M. Diolombi, Regional Finance Officer
Mr. A. Jagne, Regional Administrator

Ministère de l'Agriculture et des Ressources Animales
Dr. I. Dare, Secrétaire Général

Institut National de Recherches Agronomiques du Niger
M. S. Bawa, Directeur Général
Dr. M. Ouattara, Coordinateur Scientifique
Mme. A.D. Sabo, Chef de la Section Zootechnie
M. M. Ganda, Chef de la Section Ecologie
M. D. Adamou, Zootechnicien

Université de Niamey
Prof. A.Y. Alhassane, Vice Recteur
Mme. D. Bouli
M. K. Harouna, Doyen de la Faculté d'Agronomie de Niamey
Mme. S. Mariama, Responsable de la Bibliothèque
M. M. Hamani, Assistant à la Faculté d'Agronomie
M. B. Maxime, Chef du Département des Productions Animales

AGRHYMET
Dr. Soares, Agroclimatologist and Director General

5. NIGERIA

Ibadan - 14-15/10/91

International Institute for Tropical Agriculture
Dr. L. Brader, Director General
Dr. J. Ekebil, Deputy Director General, International Relations
Dr. D.S.C. Spencer, Director, Resource and Crop Management Programme
Dr. B.T. Kang, Soil Scientist
Dr. A.N. Atta-Krah, Coordinator, AFNETA

Abafemi Awolowo University
Prof. A.A. Ademonsun, Department of Animal Science
Prof. Y.C. Fabiyi, Department of Agricultural Economics

University of Ibadan
Prof. M.E. Aken'Ova, Head, Department of Agronomy
Prof. J.V. Akpokodje, Director, Veterinary Teaching Hospital
Dr. J.A. Akinueumi, Senior Lecturer, Department of Agricultural Economics

The Polytechnic, Calabar
Dr. E.J. Orok, Director, School of Agriculture
Dr. D.J. Udoh, Lecturer, School of Agriculture

National Livestock Projects Division
Dr. P.W. Musa, Supervisor, Southwest Region

Ministry of Science and Technology (Lagos)

Dr. O.A. Oloko, Assistant Director

Kaduna - 17-18/10/91

Ministry of Agriculture and Natural Resources

Mr. A.A. Barau, Director General

Mr. M.S. Malgamu, Director of Livestock

College of Agriculture and Animal Science, Ahmadu Bello University

Dr. S.C. Egege, Principal

Dr. D.B. Olumeyen, Director

National Livestock Projects Division

Dr. J. Maina, Project Manager

National Animal Production Research Institute (Zaria)

Prof. E.O. Oyedipe, Director

Institute for Agricultural Research (Zaria)

Dr. Y. Yusuff, Deputy Director

National Veterinary Research Institute (Vom)

Dr. Lamardi, Director

6. ZIMBABWE

Harare - 13-15/10/91

ILCA Programme Liaison Office

Dr. L. Kamwanja, Head, Animal Science, Bunda College of Agriculture,
University of Malawi, Lilongwe, Malawi

Dr. G. Kanyama-Phiri, Lecturer, Forage, Range and Agroforestry, Bunda
College of Agriculture

Mr. M.L. Kusekwa, National Coordinator, Pasture and Forage, Ministry of
Agriculture, Livestock Development and Cooperatives, Mpwapwa,
Tanzania

Ministry of Agriculture

Mr. R. Fenner, Director, Department of Research and Special Services

University of Zimbabwe

Dr. L. Ndlovu, Animal Science Department

Marondera Grassland Station

Mr. P. Hatendi, Acting Head

Mr. G. Manyou, Pasture Research Officer

Mr. C. Chakoma, Livestock Research Officer

Zimbabwe Women's Resource Centre and Network

Ms. G. Chigudu

Ms. S. Nyoni

APPENDIX V

**COUNTRIES IN SUB-SAHARAN AFRICA AGGREGATED
INTO AGRO-ECOLOGICAL REGIONS.**

	Human Population (millions)			
	1988	2025	Cattle (millions)	Small Ruminants (millions)
<u>Western Sahel</u>			<u>Semi-arid to Arid</u>	
Burkina Faso	9	23	2.8	8.2
Chad	5	14	4.1	4.5
Mali	8	24	4.7	11.0
Mauritania	2	5	1.2	7.3
Niger	7	24	3.5	11.0
Senegal	7	21	2.6	4.9
Total	38	112	18.9	46.9
<u>West Africa</u>			<u>(Subhumid- Humid)</u>	
Benin	4	11	0.9	1.8
Côte d'Ivoire	11	38	1.0	3.0
Ghana	14	36	1.3	5.5
Guinea	5	14	1.8	0.9
Nigeria	110	302	12.2	11.0
Sierra Leone	4	10	0.3	0.5
Togo	3	9	0.3	1.9
Total	151	420	17.8	24.6
<u>Central</u>			<u>(Humid)</u>	
Cameroon	11	33	4.5	5.8
Central African Republic (C.A.R.)	3	7	2.3	1.3
Congo	2	7	0.1	0.2
Gabon	1	3	-	0.1
Zaire	33	87	1.4	3.9
Total	50	137	8.3	11.3

APPENDIX V - cont'd

	Human Population (million)			
	1988	2025	<u>Cattle</u> (millions)	<u>Small Ruminants</u> (millions)
<u>Eastern Sahel</u>			(Semi-Arid to Arid)	
Somalia	6	17	5.0	33.5
Sudan	24	57	22.0	32.0
Total	30	74	27.0	65.5
<u>Eastern Highlands</u>			(Elevated, cooler subhumid to semi-arid)	
Burundi	5	15	0.3	1.1
Ethiopia	47	156	31.0	40.9
Kenya	22	62	10.1	15.8
Rwanda	7	23	0.7	1.6
Tanzania	25	74	13.5	11.3
Uganda	16	51	3.9	4.5
Total	122	381	59.5	75.2
<u>Southern Subhumid</u>			(Subhumid)	
Angola	9	27	3.4	1.2
Madagascar	11	24	10.6	1.7
Malawi	8	26	1.0	1.2
Mozambique	15	41	1.4	0.5
Zambia	8	24	2.7	0.5
Total	51	142	19.1	5.1
<u>Southern Semi-Arid</u>			Semi- Arid	
Botswana	1	2	2.3	1.3
Namibia	1	3	2.0	8.9
Zimbabwe	9	20	5.7	2.2
Total	11	25	10	12.4

SURVEY OF ACTIVITIES OF ILCA INTERNATIONAL PROFESSIONAL STAFF IN THE RESEARCH DEPARTMENT

Survey Questionnaire

The following questions were asked of all ILCA international scientists:

1. Do you have additional formal duties as well as your research? (i.e. team leader, thrust coordinator, head of discipline section, etc.)
 - a) Yes / No
 - b) If Yes which?.....
2. What proportion of your time do you spend on your personal research programme (i.e. planning, reading, organizing and implementing field or laboratory work, analyzing and writing up results)?
3. What proportion of your time do you spend on research management (i.e. supervising and advising on the work of others including ILCA staff and cooperating research staff in NARS, planning programmes of ILCA or cooperative activities, etc.)?
4. What proportion of your time is spent on non-research activities (including administration, arranging or maintaining general facilities, looking after visitors, liaison with national programmes, giving formal training courses, etc.)?

Results

A total of 48 responses were received. The results to questions 2, 3, 4 are shown in column A for scientists with formal duties ("yes" to question 1), in column B for those without such duties ("no" to question 1), and in column C for all scientists. All figures are shown in percentages.

	A			B*			C**		
	"Yes" to question # 1 = 28 scientists			"No" to question # 1 = 18 scientists			Total = 48 scientists		
	# 2	# 3	# 4	# 2	# 3	# 4	# 2	# 3	# 4
Average %	34	37	30	71	17	12	49	29	23
Median %	34	30	27	80	13	10	58	30	20
Minimum %	0	5	5	30	0	0	0	0	0
Maximum %	80	80	75	100	50	30	100	80	75

* B includes one Visiting Scientist whose responses were almost identical with the B-medians.

** C = A + B + 2 scientists who did not respond to question # 1.

Figures may not sum to 100% due to rounding.

**SURVEY ON ILCA AND ILRAD PROGRAMMES:
ASSESSING PAST PERFORMANCE AND FUTURE NEEDS**

1. APPROACH

In October 1991, in conjunction with the external reviews of ILCA and ILRAD, the Executive Secretary of TAC distributed a questionnaire to individuals in various agricultural-related institutions in SSA, who generally had some professional link with livestock. The basis for selection of participants were mailing lists provided by ILCA and ILRAD. The objectives of the survey were to elicit their opinions on:

- 1) The importance of the various programmes and activities of ILCA and ILRAD over the past five years (i.e. 1986-91).
- 2) An evaluation of the importance of the various programmes and activities of ILCA and ILRAD during the next decade (i.e. 1991-2000).

The respondents were asked to evaluate each area of interest to ILCA and ILRAD in terms of a ranking from 1 (extremely valuable) to 5 (not valuable at all). Each area of interest was evaluated not only in terms of research, but also in terms of training and information. In the case of ILCA the areas of interest were subdivided according to research thrust (i.e. five thrusts) and the themes within those thrusts, while with ILRAD they were divided by disease and socioeconomics and by themes within those groups (i.e. three groups). They were also asked a number of open-ended questions dealing with the strengths and weaknesses of ILCA and ILRAD, modes of collaboration with ILCA and ILRAD, etc.

Although the respondents were anonymous, they were also asked to indicate their current position (i.e. administrator or researcher or other), the type of institution they were employed at (i.e. NARS, university or other), their gender and an indication of any ILCA/ILRAD networks with which they had been associated.

Although 207 questionnaires (77 in French and 130 in English) were mailed, only 44 responses (17 in French and 27 in English) were received by December 15th, 1991, meaning that there was only a 21% response rate.

2. RESULTS

Unfortunately the low number of respondents who were in university, or who were female, prevented any analysis by sub-group. Also no contrasting results were obtained from differentiating administrators and professional scientists.

Therefore the only analysis presented is information by thrust and group (Tables 1 and 2) and by theme (Table 3). In general the results do not provide much information. The results indicate that all the activities in terms of thrusts and groups were regarded as very important, while there was good congruence between the respondents' views of what they have considered important during the last five years, and what they consider will be important during the coming decade. Therefore, the findings would appear to imply that the foci for research defined in the MTPs were selected correctly and reflected the opinions of NARS scientists. Also research, information and training initiatives with respect to each of the activities were all considered equally important. In terms of specific thrusts it is not particularly surprising that the Cattle Milk and Meat Thrust was viewed as most important and the Animal Traction Thrust the least important. With respect to ILRAD the groups of activities were all considered equally important. Finally, the responses to the open-ended questions revealed no general trends in the responses.

The results may be interpreted that the NARS livestock scientists surveyed, broadly support the research priorities of ILCA and ILRAD, and do not discriminate much between the different priorities.

Table 1. Evaluation of Importance of ILCA and ILRAD Activities, 1986-1991¹

Area	Research	Training	Information
<u>ILCA Research Thrusts</u>			
Cattle Milk and Meat	1.35 (0.55)	1.77 (1.07)	1.74 (1.06)
Small Ruminant Meat and Milk	1.62 (0.68)	1.85 (0.99)	1.68 (0.90)
Animal Traction	2.00 (0.98)	2.12 (1.11)	2.04 (0.96)
Animal Feed Resources	1.47 (0.86)	1.68 (1.02)	1.59 (1.05)
Livestock Policy and Resource Use	1.78 (0.87)	1.62 (0.62)	1.68 (0.79)
Trypanotolerance	1.57 (1.01)	1.86 (1.38)	1.48 (0.91)
<u>ILRAD Livestock Disease Research</u>			
Trypanosomiasis	1.46 (0.96)	1.68 (1.19)	1.46 (0.95)
Theileriosis	1.42 (1.14)	1.76 (1.23)	1.60 (1.08)
Socioeconomics	2.11 (1.22)	2.24 (1.30)	2.04 (0.62)

1. First figure under each column is the average score calculated from the responses while the figure in parentheses is the standard deviation. The score could vary from 1 to 5 with 1 being the most valuable. The number of observations in each activity varied from 25 to 33.

Table 2. Evaluation of Importance of ILCA and ILRAD Activities, 1991-2000¹

Area	Research	Training	Information
<u>ILCA Research Thrusts</u>			
Cattle Milk and Meat	1.09 (0.29)	1.18 (0.46)	1.24 (0.50)
Small Ruminant Meat and Milk	1.22 (0.49)	1.20 (0.48)	1.20 (0.48)
Animal Traction	2.23 (1.10)	2.24 (1.24)	1.97 (1.02)
Animal Feed Resources	1.19 (0.54)	1.25 (0.62)	1.28 (0.58)
Livestock Policy and Resource Use	1.56 (0.70)	1.58 (0.79)	1.41 (0.61)
Trypanotolerance	1.19 (0.48)	1.30 (0.60)	1.14 (0.44)
<u>ILRAD Livestock Disease Research</u>			
Trypanosomiasis	1.29 (0.61)	1.29 (0.68)	1.15 (0.57)
Theileriosis	1.21 (0.48)	1.23 (0.43)	1.07 (0.37)
Socioeconomics	1.43 (0.63)	1.59 (0.64)	1.36 (0.62)

1. First figure under each column is the average score calculated from the responses while the figure in parentheses is the standard deviation. The score could vary from 1 to 5 with 1 being the most valuable. The number of observations in each activity varied from 28 to 34.

Table 3. Evaluation of Importance of ILCA and ILRAD Themes, 1986-1991, 1991-2000¹

Area	1986-1991			1991-2000		
	Res.	Train.	Info.	Res.	Train.	Info.
ILCA Research Thrusts						
Cattle Milk and Meat						
Reproductive Wastage	2.04	2.09	1.95	1.50	1.54	1.23
Feeding & Management Systems	1.46	1.68	1.73	1.46	1.43	1.37
Milk Processing Techniques	2.54	2.32	2.22	2.11	2.00	1.76
Economics of Cattle Production	1.83	2.17	1.91	1.66	1.59	1.52
Breed Evaluation and Improvement	2.27	2.57	2.26	1.59	1.75	1.55
Small Ruminant Meat and Milk						
Reproductive Wastage	2.17	2.30	1.86	1.60	1.56	1.38
Feeding and Management Systems	1.87	2.00	1.57	1.37	1.31	1.26
Forage and Feeding Systems	2.19	2.56	2.19	1.61	1.81	1.54
Economics of Production	2.10	1.82	1.64	1.58	1.48	1.27
Breed Evaluation and Improvement	2.33	2.42	2.35	1.71	1.59	1.50
Animal Traction						
Intensified/Diversified Use	2.12	2.25	2.24	2.04	2.08	1.76
Introduction of Traction	2.20	2.35	2.17	2.19	2.16	1.84
Feeding Strategies	1.95	2.12	1.94	2.04	2.08	1.69
Alternative Uses	2.83	3.06	2.88	2.58	2.67	2.32
Animal Feed Resources						
Resource Assessment	1.55	1.63	1.45	1.27	1.24	1.32
Feed Resources Evaluation	1.32	1.41	1.50	1.35	1.24	1.32
Multipurpose Tree Management	1.71	2.05	2.00	1.68	1.62	1.54
Legumes in Mixed Farming Systems	1.86	2.06	2.11	1.62	1.52	1.44
Livestock Policy and Resource Use						
Policy Research	2.17	2.00	2.13	1.54	1.70	1.58
Range Trends	1.73	2.10	1.86	1.58	1.61	1.52
Semi-arid Livestock	2.04	2.38	2.09	1.56	1.54	1.56
Trypanotolerance						
Epidemiology	1.64	1.50	1.38	1.52	1.35	1.30
Trypanotolerance	1.57	1.81	1.41	1.22	1.52	1.40
Genetics of Trypanotolerance	1.68	2.11	1.86	1.31	1.50	1.42
Biological/Economic Evaluation	1.80	2.06	1.80	1.30	1.66	1.30
ILRAD Livestock Disease Research						
Trypanosomiasis						
Epidemiology	1.71	1.64	1.45	1.55	1.57	1.36
Trypanosome Biology	1.70	1.57	1.62	1.57	1.70	1.56
Immunology	1.30	1.45	1.62	1.47	1.41	1.37
Resistance Mechanisms	1.30	1.71	1.57	1.62	1.39	1.29
Theileriosis						
Biology and Epidemiology	1.32	1.43	1.40	1.39	1.31	1.15
Antigens- Sporozite Immunization	1.19	1.70	1.42	1.18	1.37	1.21
Antigens- Schizont Immunization	1.33	1.79	1.61	1.68	1.60	1.28
Vaccine Systems	1.29	1.70	1.63	1.25	1.36	1.23
Socioeconomics						
Impact Assessment	2.05	2.17	1.95	1.42	1.62	1.52
Constraints Analysis	2.11	2.00	1.94	1.50	1.62	1.52
Methodology development and modelling	2.17	1.94	2.06	1.80	1.71	1.75
Gender Analysis	2.00	2.12	2.00	2.00	2.13	1.87

APPENDIX VIII

LIST OF PAPERS SUPPLIED BY ILCA TO THE PANEL

- ILCA's Strategy and Long-Term Plan
- Sustainable Production from Livestock in Sub-Saharan Africa
- ILCA Annual Report 1989
- Information on ILCA's Governance
- ILCA 1990 Annual Programme Report
- Budget 1991
- ILCA Programme Plans and Funding Requirements 1989-1993
- Policy Paper on ILCA Collaborative Partnerships
- List of Agreements with other centres and institutions with cooperative activities
- List of Contracted Projects
- Data on Personnel in the Internationally Recruited Staff
- Paper on The Concept and Operation of ILCA/NARS Collaborative Research Networks
- Organizational Effectiveness Survey Results
- Historical Financial Data on Donor Contributions
- Internal Audit Standards Manual
- Internal Audit Reports and Internal Audit Yearly Plan
- Financial Procedures Manual
- Budgeting Procedures Manual
- Financial Report Dec. 1988-1990
- Auditors Report & Accounts
- Chart of Accounts, Income & Expenses
- Training Policy & Procedures Manual
- Personnel Policy Manual
- Staff Development Policy October 1990
- Composition of the ILCA Board of Trustees from 1986-1992
- Proposed Schedule for the Annual Programme Review & List of Participants
- Proposed Schedule for the Annual Programme Planning Meeting
- Position Paper by the Director General
- Position Paper by the DDG(R)
- Position Paper by the Director of Training and Information
- Position Paper by the Director of Government Relations in Africa
- Human Resource Management Position Paper
- Financial Controller's Position Paper
- ILCA's Response to the 1986 External Programme Review
- ILCA's Response to the 1986 External Management Review (2)
- Minutes of Programme Committee Meetings
- ILCA 1991 Project Protocols
- Description of ILCA's Research Cost Centres

- Research Operations Manual
- Information Policy & Procedures Manual
- A Handbook for the ILCA Board of Trustees
- ILCA's Sub-Saharan Africa Database
- Utilization of Research Results on Forage and Agricultural Byproduct Materials as Animal Feed Resources in Africa
- African Small Ruminant Research and Development
- Overcoming Constraints to the Efficient Utilization of Agricultural Byproducts as Animal Feed
- The African Trypanotolerant Livestock Network
- ILCA in Africa
- ILCA Training Opportunities
- ILCA Library Documentation Services
- ILCA Training Data Base - 1977-1991
- Partnerships
- Minutes of Thrust Council Meetings - February 1988 - September 1991
- Staff List October 1991
- Monthly Report, Personnel Division - November 1991
- Country Briefs
- African Livestock Research
- Minutes of ILCA Board of Trustees Meetings 1986-1990
- Director General's Report Dec. 1986 to June 1991
- Director General's Reports to the Board of Trustees Dec. 1986 - May 1991
- A Handbook of African Livestock Statistics
- Safety and Programme Security for ILCA
- A View of ILCA's Physical Plant Section
- ILCA in Print
- Transport Fleet Operation
- Directory of Experts in Livestock and Agriculture in Sub-Saharan Africa
- Impact and Needs Assessment Study by NARS of the Programmes of the Department of Training and Information - Prepared for ILCA's External Review 1991/1992
- Monthly Report, Personnel Division - November 1991
- ILCA Publications 1986-1991
- Financial Report - November 1991
- Publications by ILCA Graduate and Postdoctoral Associates, 1986-1991

ACRONYMS AND ABBREVIATIONS

ADD	Agricultural Development Department (Ethiopia)
AEZ	agro-ecological zone
AFNETA	Alley Farming Network for Africa
AFRNET	African Feed Research Network
AIRIC	Ethiopian Agricultural Implements Research and Inspection Centre
ALPAN	African Livestock Policy Analysis Network
AGRHYMET	Centre Régionale de Formation et d'Application en Agrométéorologie et Hydrologie Operationelle
AUA	Alemaya University of Agriculture (Ethiopia)
CABI	Commonwealth Agricultural Bureaux International
CD-ROM	Compact Disc - Read Only Memory
CBPP	contagious bovine pleuropneumonia
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement
CIAT	Centro Internacional de Agricultura Tropical
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
CRTA	Centre de Recherches sur les Trypanosomoses Animales
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EAVRO	East African Veterinary Research Organization
EC	European Community
EMR	External Management Review
EPR	External Programme Review
EPRDF	Ethiopian People's Revolutionary Democratic Front
FAO	Food and Agriculture Organization
GIS	geographic information system
HQ	headquarters
IARC	International Agricultural Research Centre
IBAR	Inter-African Bureau for Animal Resources
IAR	Institute of Agricultural Research (Ethiopia)
IBSRAM	International Board for Soils Research and Management
IBGRI	International Board for Plant Genetic Resources
ICARDA	International Centre for Agricultural Research in the Dry Areas

ICIPE	International Centre for Insect Physiology and Ecology
ICRAF	International Council for Research on Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre
IFPRI	International Food Policy Research Institute
IEMVT	Institut d'Élevage et de Médecine Vétérinaire des Pays Tropicaux
IFDC	International Fertilizer Development Center
IER	Institut d'Économie Rurale (Mali)
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Centre for Africa
ILRAD	International Laboratory for Research on Animal Diseases
INRAN	Institut National de Recherches Agronomiques du Niger
ISC	ICRISAT Sahelian Centre
ITC	International Trypanotolerance Centre
JVP	Joint Vertisol Project
KARI	Kenya Agricultural Research Institute
LGP	length of growing period
MPT	multi-purpose tree
MTP	medium-term plan
NARS	National Agricultural Research System
NGO	nongovernment organization
NLDP	National Livestock Projects Division
OAU	Organization of African Unity
ODA	International Development Agency
QQR	Quinquennial Review
SSA	sub-Saharan Africa
TAC	Technical Advisory Committee of the CGIAR
TRLU	tropical ruminant livestock unit
TZ	thermal zone
WAD	West African Dwarf
WHO	World Health Organization

