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CGIAR

Report of the
Second External Program and
Management Review (EPMR) of
the International Livestock
Research Institute (ILRI)

January 2008



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Report of the
Second External Program and
Management Review (EPMR) of
the International Livestock
Research Institute (ILRI)

Review Panel: Lindsay Falvey (Chair)
Johan van Arendonk
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Pervaiz Rashid
Maureen K. Robinson
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JANUARY 2008

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THIS DOCUMENT CONTAINS:

- Extracts from the Summary Record of Proceedings of the Annual General Meeting 2007 (AGM07)
- Science Council Commentary
- ILRI Response to the Second ILRI EPMR
- Transmittal letter and Report of the Panel on the Second ILRI EPMR



Consultative Group on International Agricultural Research (CGIAR)

CGIAR Annual General Meeting, 2007 (AGM07)¹

Agenda Item 6 Evaluation

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6.c ILRI EPMR

Conclusion and Decisions:

- *The CGIAR endorsed the ExCo recommendations on the 2nd ILRI EPMR.*
- *Concerning the global expansion of ILRI, the CGIAR cautioned that it should be an evolutionary process and should be within the framework of a well-structured and financed strategic plan. It welcomed the pro-active response of the Center management on partnerships. It also noted the importance for ILRI to share lessons from its positive EPMR with other Centers.*

¹ Extract from the Summary record of Proceedings of Annual General Meeting, 6-7 December 2007

**Science Council Commentary
on the Second External Program and Management Review (EPMR) of
the International Livestock Research Institute (ILRI)**

April 2007

The Report of the Second EPMR of ILRI was discussed at the Seventh Meeting of the Science Council (SC), held at ICRISAT, Patancheru, India, in the presence of Panel Chair, Dr. Lindsay Falvey, the Chair of ILRI's Board of Trustees, Dr. Uwe Werblow, and the Director General of ILRI, Dr. Carlos Seré. The SC thanked the Panel Chair and Members for a constructive and perceptive report. The SC agrees in general with the Panel's analysis of ILRI today and how it should evolve in the future. This analysis draws from the particular history of the institute recognizing the successful transformation from the ILCA-ILRAD merger and the changes that ILRI has undergone since the 1st EPMR.

The Panel's starting point was ILRI at the time of the 1st EPMR, which took place 5 years after the merger of two centers of disciplinary orientation, each with a distinctive culture. The SC is pleased to note the Panel's judgment that today ILRI is firmly established on a route to be a "regionally owned and globally driven livestock research institute"—to quote the DG—with a mission to serve the people that depend on livestock for their livelihoods.

The 2nd EPMR report presents 18 recommendations that the Panel considers important for further improving ILRI's performance as a globally relevant, well managed and financially sound Center, together with a significant number of suggestions particularly in section 3 on the research programs. Eleven recommendations are on strategic planning and research and 7 are on governance, management and finance. The SC is pleased to observe that ILRI has agreed with nearly all of the recommendations and has already made considerable progress towards their implementation. The SC endorses the findings of the review and the recommendations, while recognizing that the global livestock sector is particularly dynamic, given the rate of increase in the consumption of livestock products in the developing world and the current global interest in using land for biofuel production and its potential impact on livestock feed prices.

The SC finds the recommendations (and suggestions) comprehensive and constructive. While accepting ILRI's caveats to recommendations #4 (on pastoralists) and #6 (on People, Livestock and the Environment Theme), the SC expects ILRI to comply with the *intent* of the recommendations. With respect to recommendation #8 (on IPMS project), the SC understands that occasionally Centers are pressured (by e.g. donors) to take responsibility for managing development projects when it is perceived that there are no local institutions to do that. The SC, however, agrees with the Panel that alternative management options, such as private implementation agencies, need to be considered to relieve the Center from the risks (both financial and managerial time) of such involvement. The SC is not persuaded by the argument that ILRI needs to be involved in managing development projects in order to learn about and help evolve an emerging paradigm of "innovation systems". The ISNAR Division of IFPRI is arguably better positioned to undertake needed research on innovation systems.

Strategy and planning

The SC welcomes the Panel's recognition of ILRI's success in its strategy of influencing others to contribute to delivery of ILRI's mission: *'to reduce poverty and enhance sustainable development through livestock related research'*. ILRI is to be commended for its efforts to identify and manage different kinds of partnerships (including joint work with other Centers), which often need to be very complex, to serve research and development purposes. ILRI's high rate of joint publishing with both NARS (60%) and ARIs (53%) illustrates the success of its partnership strategy over a number of years. The SC notes that ILRI has had a CCER on Partnerships commissioned by its Board and encourages ILRI to evolve its partnership strategy towards the more general issue of sustainable agriculture, which is not much discussed in the report. As pressure on land increases due to the need to balance food security with energy security, ILRI's systems approach could have an increasing role to play in relation to sustainable agriculture.

The Panel views 10 years as a suitable general planning horizon for ILRI's research and recommends a five year plan that brings together the research, human resource and finance plans as a good management practice (#1). The SC is pleased to note that despite the difficulties of predicting the funding realities and the dynamics of the livestock sector in the developing countries, ILRI agrees with the recommendation finding it useful to develop a five-year business plan underpinning the MTP particularly for greater clarity in responsibilities for deliverable outputs and outcomes. The SC emphasizes the importance of institutionalizing the System Priorities through their incorporation into the day-to-day business in the annual operational plans as the SP framework plans mature.

The SC supports the Panel's recommendation of a 10 year planning horizon, particularly with respect to location of sites and staffing strategies. ILRI's response suggests that the 10-year horizon will not be reviewed until just prior to the next EPMR. A 5-year implementation plan will however be developed, relating to issues such as geographic scope (response to #2), staffing (response to #1) and a reassessment of the assets at its sites in Kenya and Ethiopia (response to #17). Changes in staffing, expanding geographical location of offices and asset disposal strategies are costly exercises (both in financial and human terms) and thus while welcoming the 5-year planning, the SC urges that the rationale for any changes to these strategies in the context of the 10 year planning horizon should be clearly recorded for the benefit of the next EPMR.

The SC noted that extensive quantitative strategic planning and priority setting exercises undertaken by ILRI in response to the 1st EPMR to provide more focus do not appear to have been referred to in the 2nd EPMR; this illustrates how changes in the individuals involved in management and EPMR teams can advocate different priorities within a Center's overall mandate. The SC would have liked to see how the quantitative analysis has and could continue to provide focus.

With respect to geographical focus, the SC agrees with Panel's recommendation #2 that ILRI *'requires a more geographically distributed allocation of a critical mass of resources'* in order to fulfil its broad global mandate. The SC supports ILRI's approach towards a broadening geographic spread of its research through an evolutionary process. This will necessarily include full consultation with key national partners in the regions as ILRI's global perspective unfolds. However, like the Panel, the SC does not view the Systemwide Livestock Program as the primary means of satisfying ILRI's global mandate. The SC notes the concern of recent EPMRs of the loss of focus on international public goods research in some Centers that have tried to implement

extensive regional programs by location in single countries. Therefore, the SC agrees with the Panel's recommendation that ILRI should share facilities with other CGIAR Centers to achieve the Panel's intent with respect to critical mass and it should collaborate with partners focused on a similar mission of delivering international public goods.

Research focus

The Panel makes a few recommendations for improving and adjusting the focus of the research program. Some of the recommendations (e.g. #4 and #6) are somewhat specific and are only partially accepted by ILRI. The Panel acknowledges that ILRI is best placed to decide on changes at the organizational level, but the recommendations imply that ILRI's ability to address the research topics highlighted could be improved. One such area emphasized by the Panel is research on pastoralists – an area where past involvement has been sporadic. ILCA was involved in such research that included consideration of how changing land tenure influenced the welfare of pastoralists. The SC agrees with the Panel that ILRI's orientation should be changed from considering pastoralists from an environmental point of view to addressing livelihoods issues. The report could have gone deeper in the analysis considering, for instance, decrease in available land and changes in land tenure as they affect the pastoralists. The SC agrees with the Panel's point of view that there are other pastoral communities outside SSA. Lessons learned in SSA might be of benefit in improving the welfare of such communities in parts of Asia.

ILRI has a mandate to conduct research on livestock diseases of importance to developing countries. Comments on the long time it has taken to develop a vaccine against *Theileria parva* need to be seen in the context of a similar effort by groups seeking to develop vaccines against other protozoan parasites, such as malaria. The first identification of a gene that encodes a surface protein of the human-infective stage of malaria was more than 30 years ago. In spite of large investments, predominately by ARIs, no vaccine has been developed so far. However, research has established that immunity to both malaria and theileriosis is mediated by both the antibody and cellular arms of the immune system. Vaccine development is complicated by the latter and a better understanding of the elements that elicit cell mediated immune (CMI) responses is required.

The SC is thus pleased to hear that ILRI considers vaccines still as a key intervention for many animal diseases. The SC agrees with the EPMR Panel that ILRI's approach to vaccine research needs to be carefully considered and it believes that ILRI's current intention to develop different tools for partners through a platform approach is appropriate. The Panel's suggestion to rank diseases through cost-benefit studies (p 27) needs to build on the extensive *ex ante* impact assessment and priority setting work previously undertaken by ILRI after the 1st EPMR.

The Panel acknowledged that the 1st ILRI EPMR recommended discontinuation of research on trypanosomiasis, but provided no further discussion. The disease remains an important livestock constraint in Africa, particularly affecting pastoralist societies. Conventional vaccines have been shown by earlier ILRAD/ILCA research to be an unlikely solution. However, there are continuing but dispersed efforts to work on alternative means to combat the disease (including drug and anti-vector strategies). This work lacks an international focus for application and ILRI may be advised to consider a role in relation to its target livestock systems.

The Panel's intention with regard to moving research on zoonotic diseases to the Theme related to markets (#6) was initially not quite clear to the SC, but clarification identified their perception of additional opportunities, which could arise from a stronger market focus.

The SC would have liked to see more clarity on how the Panel considered ILRI's role in developing its contribution to research on pigs and poultry since these were mentioned, but the SC agrees with ILRI, that relevant research objectives should be identified from an issues perspective rather than being species-driven. For these two domestic species, consideration also needs to be given to ILRI's comparative advantage in an area in which the private sector has heavily invested in developing measures for disease control.

BecA

The SC commends ILRI for establishing the BecA network with the involvement of the New Partnership for African Development (NEPAD) as a collaborator. BecA has been created as a regional "center of excellence" and ultimately to be a driver of economic growth. It has been difficult for countries in the region to pool their resources in support of such centers. BecA seeks long-term approaches, based on partnership for transformation of the economies of the countries in the region. Central to this economic development agenda will be the role of science, technology and innovation. As noted by the EPMR Panel, BecA will provide the opportunity for ILRI to be involved in the study of a range of diseases (#3) depending on the needs of its partners, which will be based on a problem-solving approach in building regional capacity in the biological sciences. The SC agrees with the Panel in suggesting that ILRI maintains a clear focus on its role in collaborations with like-minded partners.

Staff balance, achievements and impact

The SC notes that economists form a remarkably high proportion of ILRI research staff (32% of IRS) and that economists are involved in all themes, although (appropriately) to differing extents. This compares with only 28% in 'animal science/health/genetics and nutrition' disciplines. ILRI should be cognizant of the importance of maintaining an optimal balance of disciplines among its researchers. The SC will be interested to see the Center's vision for disciplinary balance in the long-term as ILRI develops its staffing plan.

The 'Market theme' has the smallest range of disciplines with only 5 out of 19 professional staff not having an economics/economic policy background. The Panel drew attention to this narrow skill base. The SC wishes to encourage ILRI to ensure that its scientists across disciplines are aware of the findings in this rapidly developing area and the implications for the context of their own research. The SC encourages ILRI to plan its activities in this area in the context of the System Priority 5B.

The SC was interested to learn that ILRI's decision to merge the 'Enabling innovation' and 'Targeting opportunities' themes, signalled in the current MTP 2007-2009, superseded the Panel's recommendation to do so. The SC is concerned by the lack of publications in major peer refereed journals in these two themes, given the significant investment in these areas and anticipates that the merger will bring more scientific rigor to the work in the new theme. The SC notes with satisfaction the relatively high level of publications—quantity and quality—in other themes.

The SC is pleased to see that ILRI will address the need to conduct *ex post* impact assessment across its research themes. This activity was intentionally kept dormant for the past six years due to the emphasis on *ex ante* work during the implementation of the strategic plan and systems approach, and the apparent lack of interest on the Center's part on evaluating the impact of discontinued projects for merely accountability purposes. The SC believes *ex post* impact assessment is a continuous need and ILRI's decision to de-emphasize it recently has contributed to its low ratings in the 3a and 3b components of the Performance Measurement System. The SC is pleased to learn that *Outcome Mapping*, a monitoring tool that ILRI has introduced to its teams, is seen as a complementary tool to *ex post* impact assessment, which the SC hopes will facilitate these appraisals.

ILRI RESPONSE TO EPMR RECOMMENDATIONS

The ILRI Board and Management thank the EPMR panel chair and members for their thoughtful review of ILRI's program and management. We found the panel's comments on ILRI's past performance and future directions both insightful and helpful.

We are in agreement with the recommendations of the panel. A specific response to each recommendation is given in the Table below.

No	Recommendation
With Respect to Strategy and Planning	
1	Considering the competitive operating environment, the substantial assets of ILRI and the naturally long horizon for measuring results in livestock research, ILRI should expand its planning horizon to complement the MTP. The Panel recommends a planning cycle in which strategic vision and goals with ten year horizons yield strategic five-year business plans, operationalized annually.
	Agreed – ILRI currently has a strategic vision and goals that were developed in 2002 and reviewed in 2005 prior to its 2nd EPMR. The 10-year strategy will be reviewed prior to each subsequent EPMR. ILRI has begun developing 5-year implementation plans that bring together research, resource mobilization, staffing, partnership planning and communications and linking these to annual workplans and performance management. The 5-year horizon is appropriate for planning how research outputs lead to development outcomes.
2	The ambition of global impact requires a more geographically distributed allocation of a critical mass of resources. Projects with global outcomes can beneficially be managed from locations other than east Africa. The Panel therefore recommends that ILRI redefine its physical location strategy (using CGIAR Centres wherever possible) and its <i>modus operandi</i> for each region. The Board should assess progress in three years through external review.
	Agreed - ILRI accepts this recommendation, recognizing the major programmatic, partnership and financial challenges this acceptance implies. We see an expansion in geographic scope as an evolutionary process in which the Board and management will develop a plan to engage with key partners in different regions and through that mechanism develop strategies and resource mobilization opportunities. Our approach will be to focus on key global livestock issues backed up by a global knowledge management and communications strategy that takes account of the context, needs and opportunities in different regions.
With Respect to Research Programs – Themes	
3	Noting that the BecA network will offer ILRI and its partners opportunities to study a range of diseases, the panel recommends that ILRI maintains a clear focus in vaccine research, and that before ILRI enters any new disease for developing a vaccine or diagnostic, it clearly defines its role and that of its partners, and evaluates the viability of any new technology.
	Agreed – In vaccine and diagnostic research we plan to follow two approaches, one when ILRI plays the leadership role (such as for East Coast fever) and one in which ILRI contributes a specific component to a larger initiative led by others. In vaccine projects that ILRI plans to lead, we will carefully consider our comparative advantage, research capacity and financial resources before committing to lead the project. When ILRI is requested to participate in vaccine projects led by NARS or ARI partners, we would agree to provide specific research inputs if we have the capacity and financial resources are made available.
4	As pastoralists are an ancient and continuing component of the livestock sector, and as they are increasingly marginalized by agricultural development, the Panel recommends that People, Livestock and the Environment Theme research related to transhumant livestock keeping be oriented to pro-pastoral policies globally and that knowledge developed to date be published in a global context as a priority.
	Partially agreed – Strengthening ILRI's global contribution by publishing methods and practices for pro-poor pastoral research for development is a logical next step. This contribution to global fora will build initially on research results from studies in East and West Africa that have provided important insights such as sustainability, diversification and vulnerability issues for pastoral communities. ILRI's contribution to global pastoral issues will focus on pastoral systems in the tropical zones, as others have comparative advantage in pastoral systems of temperate zones.

5	In view of the imminent new capacity for plant biosciences in BecA, the Panel recommends that ILRI maximize use of the facility for the forage genebank activities while also increasing research collaborations, particularly with the CGIAR Centers, that enhance the use of the germplasm.
	Agreed –Our plans for interactions between the forage genebank and BecA would focus on the identification and selection of traits for key abiotic and biotic stresses for a few selected forages. Broad-scale molecular characterization of forages is unlikely to be a priority. We see opportunities for other Centres to use the grass germplasm in the ILRI collection to look for genes of interest to their breeding programs. A critical short-term focus will be to work with CIAT and ICARDA to increase the efficiency of global forage genetic resources in the areas of genebank management and strategic utilization of conserved materials.
6	The Panel views the People, Livestock and the Environment Theme as both broad and uneven. To remedy this, the Panel recommends that OP2 be focused on pastoralists and INRM and a refocused OP3 be transferred to the Markets Theme.
	Partially agreed – ILRI recognizes the need for greater focus and coherence within the People, Livestock and Environment Theme. We see the coherence coming from a focus on two main issues, sustainability of land and water resources in livestock production systems and the intensification of crop-livestock systems given the need for greater production from limited land and water. These issues will be considered and implemented through a number of strategic realignments of the theme portfolio over the next 18 months. Research on zoonotic diseases of importance to the poor is a priority for ILRI. We will review how to structure this between the People, Livestock and Environment and the Market Themes.
7	Following success of ILRI facilitating the creation of a large regional initiative (BecA), the Panel recommends that ILRI look at how it can generate adequately resourced, high impact initiatives for each Theme.
	Agreed - ILRI will continue to improve its resource mobilization by strengthening the current strategy and how it is implemented. A selected number of livestock issues of global concern to which ILRI research can make a contribution have been identified as priorities for concerted resource mobilization efforts.
8	Given the risks to ILRI of being perceived as conducting development activities, the Panel recommends that the IPMS project be managed, budgeted and reported in two parts with research allocated to respective Themes and project management done by the DDG's office, and that ILRI decline management roles in future development projects.
	Partially agreed – To have impact, ILRI research needs to actively engage with development projects and partners. We agree it is critical that ILRI constantly assess its research for development role. We also agree that in the management of large research – development projects, ILRI concentrates on its research role and partners with others who have expertise in development activities. ILRI believes it is important to manage the IPMS project as one entity. However, ILRI agrees to better link the research components and their reporting to its research programme.
With Respect to Cross-cutting Issues	
9	In the interests of continuing to improve the quality of its research output, the Panel recommends that ILRI immediately and systematically invest in increasing its Internet capacity for research purposes.
	Agreed - ILRI is committed to expand its internet capacity with increased expenditures in 2007. ILRI and ICRAF are establishing a common ICT unit which should improve our capacity for strategic investment. Currently we are undertaking an internally commissioned review on ICT to advise on practical approaches and the investment required to increase internet capacity, taking into account regulatory and infrastructure conditions.
10	As a critical component of ILRI's systems approach, the Panel recommends that ILRI management charge the research themes to conduct ex post impact studies on selected programs using methodologies developed by the new Innovation and Impact Unit, and using external inputs where needed.
	Agreed - ILRI will take steps to strengthen its <i>ex-post</i> impact assessment capacity. These will include the participation of scientists who carried out the research, methodological support from impact assessment specialists in ILRI's Innovation and Impact Unit and review by outside experts to ensure objectivity.
11	As part of ILRI's contribution to strengthening capacity, the Panel recommends that ILRI make this activity explicit and measurable in research program design and report results for both training and follow up activities.
	Agreed - ILRI has recently recruited a senior Capacity Strengthening Manager and is

	finalizing a capacity strengthening strategy for the institute. Procedures will be put in place so that capacity strengthening contributions are explicitly recognized in its program planning, implementation and reporting.
With	Respect to Governance, Management and Finance
12	The panel recommends that ILRI provide new members of the board with a thorough orientation to the financial issues and trends that shape ILRI's budget, strategy, and capacity as well as to the processes that support the board's responsibilities for financial stewardship and oversight.
	Agreed- An orientation program is being developed and a financial briefing session was presented to the Board prior to its November 2006 meeting. This program will be updated to reflect the changing environment and the changes within ILRI's priorities and structure as well as the evolving requirements of the Finance & Audit committee of the Board.
13	The Panel recommends that ILRI management and the board chair redefine the responsibilities and scope of work of the Board Secretary and improve ILRI's practices with respect to meeting preparation.
	Agreed - A detailed checklist on Board meeting preparation and the conduct of Board affairs throughout the year is being developed by the Secretary and the Board Chair and will be implemented by ILRI management and Board.
14	The panel recommends that the board increase the quality of its board recruitment process by developing a multi-year strategy for the recruitment of new board members, which supports the global mandate of ILRI and provides it with a board that is a sustained asset to the accomplishment of its work.
	Agreed - The ILRI Board of Trustees will finalize a Board of Trustees Development Strategy which includes the recruitment of Board members based upon complementary skills to ensure continuity in providing oversight to the business of ILRI.
15	ILRI having identified the weaknesses in key management proficiencies, the Panel recommends that the DG and DDG institute comprehensive training and development opportunities for all managers and hold themselves and managers responsible for improvements in performance.
	Agreed – ILRI, with external consultants, has reviewed its human resource management and individual manager skills. Follow-up actions identified as part of this review have been agreed. These will be implemented in the next 12 months and their effect monitored and reviewed as part of a continuous management improvement program.
16	The Panel recommends that ILRI undertake a comprehensive reassessment of its current sites in Kenya and Ethiopia, exploring all options with respect to the management and disposition of its properties.
	Agreed – Within its evolving global strategy, a comprehensive review of ILRI properties and assets in Kenya and Ethiopia will be conducted with a view to assessing their relevance and increasing their effectiveness and efficiency.
17	The Panel recommends that as part of overall improvements to the HR function, ILRI develop a staffing plan which is cognizant of geography, anticipated disciplinary expertise and gender, and is consistent with the ILRI priorities.
	Agreed – This recommendation will be implemented as part of the business planning and globalization of ILRI's activities (response to recommendations 1 and 2).
18	The Panel recommends that ILRI continue to improve its financial management through adoption of a new investment strategy, a more comprehensive resource mobilization plan, and more efficient grants management.
	Agreed – An investment policy was approved at the November 2006 Board meeting. In line with recommendation 7, ILRI agrees that it needs to increase its skills and experience in resource mobilization and enhance coordination of resource mobilization activities within the institute. We also concur that, as far as possible, restricted fund raising should focus on large and medium-size and longer-term grants and should also attempt to recover staff costs and overhead to the largest extent possible.

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25 October 2006

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Dear Drs Pinstруп-Andersen and Reifschneider,

On behalf of the Panel, I am pleased to transmit to you the Report of the Second External Programme and Management Review (EPMR) of the International Livestock Research Institute (ILRI). The Panel has reviewed ILRI's performance in the four broad areas of: i) mission, strategy and priorities; ii) quality and relevance of the science; iii) effectiveness and efficiency of management (including governance and finance); and iv) accomplishments and impacts. We have also addressed the list of strategic issues received from the Science Council.

The Panel finds ILRI to be a strong research institute that has during the period under review developed a systems-oriented holistic research approach to better address livestock related problems that are relevant to the poor. ILRI's research structure as revised in the latest Medium-Term Plan is likely to allow the Institute to effectively respond to the challenges that the highly dynamic livestock sector in developing countries poses on poor people and the environment.

The Panel also finds ILRI to be a well governed institute with responsive leadership and management. Because the review of ILRI's programs and management takes place within the context of a sound institution, many of the EPMR's recommendations are presented in terms of strengthening current trends and practices, although sometimes with specific requirements for changes in modes of management and delivery.

We would like to express our thanks to the ILRI Board, management and staff, who cooperated with us in every way and provided us with all the information and facilities we required.

Finally, the Panel members join me in expressing our appreciation for the opportunity to participate in the challenging task of conducting this Review, and for the Science Council's excellent support in the form of Sirkka Immonen. We hope that the Report will be useful to ILRI and its partners, as well as to the CGIAR.

Yours sincerely,



Lindsay Falvey

Panel Chair

Second External Program and Management Review of ILRI

**CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
SCIENCE COUNCIL AND CGIAR SECRETARIAT**

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of the International Livestock Research Institute (ILRI)**

Review Panel: Lindsay Falvey (Chair)
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**SCIENCE COUNCIL SECRETARIAT
OCTOBER 2006**

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PREFACE

Panel Mode of Operation

The 2nd External Program and Management Review of ILRI was conducted under the Chairmanship of Professor Lindsay Falvey. The composition of the Panel and their biodata are provided in Annex 1. The Terms of Reference for conducting EPMRs and the list of the Science Council's (SC) strategic issues to the review Panel are given in Annex 2. The review was carried out in two phases and in addition included prior attendance at the ILRI Board meeting by the Chair and Governance expert and field visits in Africa and Asia as detailed in the Panel itinerary in Annex 3.

The EPMR Panel was guided by the general objectives of EPMRs: (a) to provide the CGIAR members with an independent and rigorous assessment of the institutional health and contribution of the Center; and (b) to provide the Center and its collaborators with assessment information that complements or validates their own evaluation efforts. The Panel made every attempt to conduct the review in an objective and transparent manner with a focus on the future as well as the past.

The information, on which the Panel based its decisions regarding the key concerns and issues, and its assessments and conclusions, was gathered in a number of ways. These included: briefings given to the Panel Chair and members by the SC and its Secretariat; extensive documentation provided by ILRI and the SC and the CGIAR Secretariats documents and data provided to the Panel in response to its particular needs, all provided at an EPMR Internet site (listed in Annex 4); analysis of the CVs of professional staff providing information on their career at ILRI and research merits during 2001-2005 irrespective of employer; review of BoT agendas, minutes and other documentation, observations of the BoT in action (at the March 2006 meeting) and interaction with BoT members individually; briefings and communications during the Initial Visit to ILRI HQs from the Director General (DG), the senior management team, Theme/Program Directors and other research staff, the finance and administration team and research support units; information gathered during Panel member field visits in Uganda (June 2006), Mali, Niger and Nigeria (September 2006) and Thailand China and India (September 2006) to review ILRI research project activities in the field and meet with its clients and collaborators, and email correspondence with a variety of ILRI donors and CGIAR Center DGs.

The Panel decided not to assess every aspect of the Center operations in-depth and it relied, to the extent possible, on the 10 Center commissioned external review reports and one donor report.

The Center was kept informed of the Panel's activities and progress during the review. The Panel Chair and ILRI DG were in regular contact, particularly during the Main Phase. Between the Initial and Main Phases, Panel members prepared first drafts of all the sections of the report and during the Main Phase focused on validating the hypothesis, discussing and agreeing on the main findings and completing final drafts of each section of the report that were agreed by the whole Panel. These Panel drafts were shared with the Center for checking their factual accuracy prior to finalization. At the end of the Main Phase visit, the Panel Chair presented the main findings and recommendations of the Review to a meeting of ILRI staff at which the Board Chair was also present.

Acknowledgements

The 2nd ILRI EPMR Panel wishes to express its sincere appreciation to the Board, DG, Senior Management and all staff of ILRI for their support and assistance during this review. The Panel is grateful to the ILRI staff for making its stay efficient and copacetic for the two visits to ILRI in Nairobi and Addis Ababa. The Panel particularly thanks Ralph von Kaufmann who helped in coordinating the review on ILRI's behalf, while also extending its thanks to ILRI's staff in other parts of Africa and Asia, and to representatives of ILRI's partner organizations in Kenya, Ethiopia, Uganda, Nigeria, China and India for their time and helpfulness. It is with pleasure that the Panel also thank the SC Secretariat, in particular Sirkka Immonen, who served as secretary to the Panel, and the CGIAR Secretariat, particularly Manny Lantin who served as resource person to the Panel, for coordination and management of this review and for guidance throughout. The Panel also would like to thank the SC Secretariat staff for their assistance in logistical matters and report preparation.

SUMMARY AND RECOMMENDATIONS

ILRI is a successful organization by most measures. It has overcome a difficult merger 12 years ago, and has risen to the challenge of a vastly expanded mandate without benefit of substantial additional resources. To make its task more difficult and its achievements more impressive, it is supposed to conduct research across all major domestic animal species in all regions of the poverty-affected world. To accomplish any of this requires a form of intelligent focus that ILRI has been able to demonstrate. It should be a matter of pride to the CGIAR and beyond that a Center has delivered so much in an increasingly restricted and competitive funding environment, one in which funding increases tend to be modest. This review of ILRI's programs and management takes place within the context of a sound institution. It is for that reason that many of the EPMR's recommendations are presented in terms of strengthening current trends and practices, although sometimes with specific requirements for changes in modes of management and delivery.

ILRI operates in a dynamic setting – more dynamic than that of a single commodity center where the focus is determined by one or a few crops. ILRI's response to the dynamism of its mandate is to focus on systems, in preference to discipline or geography. This has allowed ILRI to launch into global livestock research on a scale and to an extent that would not have otherwise been possible. In doing so, it has modulated its initial identity as mainly cattle and only Africa, and moved beyond the boundaries of its parent organizations. It has skillfully balanced its plans with donor requirements to produce a reasonably focused research program.

In framing its research approach, ILRI has sought to underpin research activity by addressing the primary constraints to assisting the poor. This approach incorporates technical, economic, social and policy research in a coordinated interaction to identify and reduce those constraints. Of course, the approach links with development activities and there is a risk of being pulled from research into development itself, a danger that ILRI has by and large avoided, and which, the Panel hopes with recommendations in this report, it will be able to avoid as it plans its future.

In its planning, ILRI has sought a single, compelling vision to guide it. Recent plans center this vision on a 'revolution' in demand for livestock products in poor countries. The vision has proved useful for refocusing the organization. It can now be widened to include more insight and understanding of the way in which different groups of the poor are affected by this revolution, and in widening ILRI's activities to focus better accommodate both global and species variations by applying its characteristic approach to problem identification and research.

The systems research approach has facilitated ILRI's global expansion through multi-country projects. This has been done with minimal staff located out of ILRI's east African base(s), working at times in unsupported and intellectually lonely conditions. As an initial commitment to global expansion, the minimal staff presence beyond east Africa has been useful, but has only limited potential in the long term, particularly if ILRI is to develop its credibility in distant regions. To move forward with its mandate, ILRI must create a presence in Asia and West Africa, ideally located within other CGIAR Centers wherever possible to create a context for staff and synergies with other Centers.

ILRI's strategy is expressed through a research program framed by Themes. These are designed to break down disciplinary barriers, but they also add a layer of complexity to ILRI's management. Projects are generally well conceived and conducted, yet there are some that would

be better combined with others or cancelled, and others that need to be improved by demanding better quality of outputs, notably publications.

In an evolution of the strategic plan, the Targeting and Innovations Theme brings together elements of two Themes that were separate in the initial conception of the plan, but are now integrated. The new Theme is redefining its role in support of research and global activities throughout ILRI. The Markets Theme is the lens through which management mostly clear views the ILRI vision and its understanding of markets provides loci for parallel technical and policy research. In the Biotechnology Theme, soon to receive a major boost from the BecA investment and network, ILRI's already fine work can be expected to improve even further if it retains focus, reduces duplicative inefficiencies in database and phenotype descriptive work, and considers a wider range of species in a more global approach to its work.

The Peoples, Livestock and Environment Theme is broad, and needs to be rationalized to achieve a critical mass of research capacity in some areas and to increase and focus its publications in other areas in order to match the competent work of the germplasm bank and the impressive work in India supporting nutrition in feed-food selection of crops (both will continue to rely on partnership with other Centers for efficiencies). To create clearer support for enhanced impact assessment, a separate unit has recently been created within the office of the DDG.

The Panel noted throughout its review the readiness of ILRI to engage partners in a collaborative approach to its work. It has overcome many of the barriers that typically prevent collaboration in a highly competitive environment. It has taken the initiative to find more enterprising and efficient ways to work with other Centers and provided support and a home to the effort to create a sub-regional MTP, albeit at some management cost. The values that shaped this approach to other CGIAR Centers and partner organizations are integral to ILRI's culture and are evident through much of the organization.

The Panel hopes that its report, notwithstanding its specific recommendations for improvement, conveys the generally favorable impression it formed of ILRI, its work and its staff. ILRI continues to be a unique center that deserves specific recognition for addressing an orphan component of international agricultural research. It is worth recalling and repeating: livestock are often kept by the poorest of marginalized farmers and the landless; general agricultural research, even that conducted on behalf of poor crop farmers, can easily further marginalize the even poorer farmers who keep some livestock; pastoral communities continue to be pushed to increasingly limited land areas that compromise their once sustainable practices; developed country research is not generally transferable to poor livestock keepers; private sector livestock research is oriented to market opportunities which do not exist for poor livestock keepers; in some cases, NARS are oriented to crop-based developments that do not include livestock or may even further marginalize livestock keepers; rising numbers of urban poor keep some small livestock; and livestock often form integrated components of a farm, no component of which can be understood without understanding the overall system. It is facile to say that if the world did not have an ILRI, we would have to create one, but it is important to ask how we may improve the efficacy of this essential organization.

Continuous improvement is part of any responsible organization and ILRI has proved itself to be responsive and responsible in undertaking a wider mandate than was envisioned properly when it was created. The Panel commends its progress and concludes that ILRI while functioning well will continue to improve by implementing the following recommendations.

Recommendations

With Respect to Strategy and Planning

Recommendation 1. Considering the competitive operating environment, the substantial assets of ILRI and the naturally long horizon for measuring results in livestock research, ILRI should expand its planning horizon to complement the MTP. The Panel **recommends** a planning cycle in which strategic vision and goals with ten year horizons yield strategic five-year business plans, operationalized annually.

Recommendation 2. The ambition of global impact requires a more geographically distributed allocation of a critical mass of resources. Projects with global outcomes can beneficially be managed from locations other than east Africa. The Panel therefore **recommends** that ILRI redefine its physical location strategy (using CGIAR Centers wherever possible) and its *modus operandi* for each region. The Board should assess progress in three years through external review.

With Respect to Research Programs – Themes

Recommendation 3. Noting that the BecA network will offer ILRI and its partners opportunities to study a range of diseases, the Panel **recommends** that ILRI maintain a clear focus in vaccine research, and that before ILRI enters any new disease for developing a vaccine or diagnostic, it clearly define its role and that of its partners, and evaluate the viability of any new technology.

Recommendation 4. As pastoralists are an ancient and continuing component of the livestock sector, and as they are increasingly marginalized by agricultural development, the Panel **recommends** that People, Livestock and the Environment Theme research related to transhumant livestock keeping be oriented to pro-pastoral policies globally and that knowledge developed to date be published in a global context as a priority.

Recommendation 5. In view of the imminent new capacity for plant biosciences in BecA, the Panel **recommends** that ILRI maximize use of the facility for the forage genebank activities while also increasing research collaborations, particularly with the CGIAR Centers, that enhance the use of the germplasm.

Recommendation 6. The Panel views the People, Livestock and the Environment Theme as both broad and uneven. To remedy this, the Panel **recommends** that OP2 be focused on pastoralists and INRM and a refocused OP3 be transferred to the Markets Theme.

Recommendation 7. Following success of ILRI facilitating the creation of a large regional initiative (BecA), the Panel **recommends** that ILRI look at how it can generate adequately resourced, high impact initiatives for each Theme.

Recommendation 8. Given the risks to ILRI of being perceived as conducting development activities, the Panel **recommends** that the IPMS project be managed, budgeted and reported in two parts with research allocated to respective Themes and project management done by the DDG's office, and that ILRI decline management roles in future development projects.

With Respect to Cross-cutting Issues

Recommendation 9. In the interests of continuing to improve the quality of its research output, the Panel **recommends** that ILRI immediately and systematically invest in increasing its Internet capacity for research purposes.

Recommendation 10. As a critical component of ILRI's systems approach, the Panel **recommends** that ILRI management charge the research themes to conduct *ex post* impact studies on selected programs using methodologies developed by the new Innovation and Impact Unit, and using external inputs where needed.

Recommendation 11. As part of ILRI's contribution to strengthening capacity, the Panel **recommends** that ILRI make this activity explicit and measurable in research program design and report results for both training and follow up activities.

With respect to Governance, Management and Finance

Recommendation 12. The Panel **recommends** that ILRI provide new members of the board with a thorough orientation to the financial issues and trends that shape ILRI's budget, strategy, and capacity as well as to the processes that support the board's responsibilities for financial stewardship and oversight.

Recommendation 13. The Panel **recommends** that ILRI management and the board chair redefine the responsibilities and scope of work of the Board Secretary and improve ILRI's practices with respect to meeting preparation.

Recommendation 14. The Panel **recommends** that the board increase the quality of its board recruitment process by developing a multi-year strategy for the recruitment of new board members, which supports the global mandate of ILRI and provides it with a board that is a sustained asset to the accomplishment of its work.

Recommendation 15. ILRI having identified the weaknesses in key management proficiencies, the Panel **recommends** that the DG and DDG institute comprehensive training and development opportunities for all managers and hold themselves and managers responsible for improvements in performance.

Recommendation 16. The Panel **recommends** that as part of overall improvements to the HR function, ILRI develop a staffing plan which is cognizant of geography, anticipated disciplinary expertise and gender, and is consistent with the ILRI priorities.

Recommendation 17. The Panel **recommends** that ILRI undertake a comprehensive reassessment of its current sites in Kenya and Ethiopia, exploring all options with respect to the management and disposition of its properties.

Recommendation 18. The Panel **recommends** that ILRI continue to improve its financial management through adoption of a new investment strategy, a more comprehensive resource mobilization plan, and more efficient grants management.

1 CONTEXT

Any consideration of absolute poverty alleviation must include livestock because poverty and livestock are inextricably linked – 70 percent of the poor rely on livestock. Hence livestock research that serves international development requires a clear understanding of where the real poor are, the reasons that they are poor and assessment of where research can be applied. This simple requirement is often confused by unconsidered global averages. To emphasize this context, this document introduces some common misconceptions about livestock and the poor in order to demonstrate the critical role played by ILRI in poverty alleviation and livestock development. Within that context, ILRI's strategic contribution is to understand the dynamics of the sector, and to assist the poor to cope with change and to seize opportunities. It is a wide mandate and one in which ILRI has been particularly successful, after having weathered earlier difficult times well while contributing substantially to multiple donor objectives.

1.1 Livestock in the Less Developed World – and ILRI

Livestock research for development offers means of interacting with the really poor by developing technologies and policies that enhance security and health, which are often higher level requirements of the poor than dollar measures. Global figures indicate that livestock are important in providing some 20 percent of food energy and 30 percent of protein, yet these figures mask their relatively higher value to the poor, geographical distributions, excess animal products in some diets and nutrient deficiencies in others, as well as cultural dietary differences. Nevertheless, it may be said without hyperbole that livestock are critical to all conventional considerations of the mandate of the CGIAR and other international development organizations.

The complexity and diversity of opinions about livestock development create misconceptions that haunt much international livestock research. The livestock of the poor are not those that consume grain better consumed by the hungry poor, nor are they usually those which create the major risks of animal-to-human disease transmission, or damage environments or produce the major greenhouse gas emissions, nor is their low productivity inefficient in terms of resource inputs. Such livestock – rabbits and other rodents, poultry, pigs, goats, sheep, cattle, buffalo, yak, camels, horses and others – are numerous, and even though most are remote from the quality standards of affluent markets, local markets can form a part of the dynamic change occurring in poor areas.

One response this market separation is to enhance market-driven intensification of livestock to assist the poor. This can sometimes further marginalize the poor, but otherwise it largely passes them by. In any case, the demands of additional grain production for intensive animal industries, the ethics of animal welfare in intensive production systems, and cultural-rights questions surrounding assumptions that nomadic livestock keepers should become sedentary, raise wider questions in terms of the CGIAR approaches. Sandwiched between assumptions of global proliferation of intensive livestock systems and traditional systems that can benefit from insightful research is the meat of the mission of international livestock research for the poor, expressed as acting 'to reduce poverty and enhance sustainable development through livestock-related research' through policy, markets and technological research. The locus of such research is the various part of the globe where the poor are located – South Asia, SSA and Southeast Asia.

Affluence-driven livestock-product consumption over the past two or so decades, particularly in Asia, indicates rises of three-times for meat and two-times for milk above rich-country rises.² Even modest increases in income seem to produce marked increases in demand for animal products. For milk consumption in India and pigs in China, opportunities exist for some cash-poor livestock keepers close to markets to benefit from this increased demand. Such market-driven development seems self-perpetuating and of marginal relevance to the real poor excluded from such opportunities by distance or other barriers. Relying only on the affluence-pull out of poverty argument begs the question of who are the poor.

If the majority of the nearly 50 percent of all people whom we think exist on less than US\$ 2 per day are in Asia, the primary regions for poverty-oriented livestock research would seem logically to be in Asia.³ Of course, cash-poverty is less serious than a lack of basic minimum needs which may place some of tropical Asia's poor above others in colder and less productive subsistence environments. This difference between absolute- and relative- (cash-based) poverty is critical to interpreting the intent of the CGIAR vision, and when coupled with considerations of some parts of Asia having the capacity to address local issues, a relative balance between the livestock research needs of the poor across the globe becomes evident.⁴

Cash comparisons are probably more relevant to urban dwellers, who are the faster rising component of less-developed countries and who may expect to benefit from the apparently continuing decline in livestock product prices associated with efficient, private, intensive production units close to major urban centers.⁵ In such cases, the externalities from industrial systems can have serious consequences for the poor, and research to minimize negative impacts is valuable.

A challenge for poverty-oriented research is to discriminate between issues properly addressed by these industries themselves such as waste-concentration pollution, food safety and even animal-human disease transmission. For the poor livestock keepers, it is their location and production system that defines the research opportunities.

Livestock production may be separated into; rangeland systems, integrated agricultural systems and landless systems. In terms of the poor, rangelands include the extensive pastoral systems that continue in Asia (for example, Mongolia and China (Tibet)) and Africa (for example, the Sahel); integrated agriculture includes smallholder mixed crop-and-livestock systems across Asia, Africa and some countries of Latin America; landless systems include urban herders and milkers, backyard monogastric and rodent raisers and scavenging livestock. Potential to improve the welfare of poor livestock keepers exists in all systems, but is naturally greater where favorable market, climatic and feed resources exist – factors that generate their own demand for innovation especially to serve rising affluence. Research is not necessary to accelerate such self-fueling development, but research that learns from it can assist the poor in other regions – it can link to

² Delgado, C. 2005. Rising Demand for Meat and Milk in Developing Countries: Implications for grasslands-based livestock producers. in D. A. McGiloway, ed., *Grassland: a global resource* (The Netherlands: Wageningen Academic Publishers) 29–40.

³ World Bank. 2005. *Agricultural Growth for the Poor: An Agenda for Development*. The World Bank, Washington, DC.

⁴ Sachs, 2005. *The End of Poverty: Economic Possibilities for Our Time*. Penguin, 416pp.

⁵ Delgado, C. 2003. 'Rising Consumption of Meat and Milk in Developing Countries Has Created a New Food Revolution'. *Journal of Nutrition* (133) 11. *Supplement II on Animal Source Foods*. Nov. 3907s–3910s.

research that serves the continually marginalized and food-insecure in the complicated milieu of international livestock research planning.

Economically marginalized livestock keepers conceive livestock products differently from those in commercially-linked systems.⁶ For example: dung is not simply seen as crop fertilizer but also as material for house construction, cooking fuel and so on; animal power is not just for ploughing but also for traction, packing, working mills etc; frequent small income from milk, eggs, hair and small meat producing animals is valued over delayed higher incomes, milk is not just a fresh product made into butter and cheese to suit tastes but is made storable and transportable through diverse fermented and other traditional products; coarse hair and wool for family use is valued above finer products, meat is not a primary product but an end-of-life product associated with the production of other perhaps more valuable non-edible animal products, and the financial value of an animal set by a urban market may grossly undervalue its economic value when cultural, self-incremental savings capacity and other values are considered.

Seen from this perspective, assumptions that, (1) livestock systems evolve into commercial markets and (2) that the trend should be accelerated by development research, could be conversely argued to further marginalize the poor and food insecure livestock keepers unless balancing research in their immediate interests forms part of the same program. Focusing on areas of high development potential – defined as access to affluence-driven markets – lead one to ask ‘is this research assisting the poor?’ The point is worthy of elaboration. Poor people keep environmentally adapted indigenous livestock breeds that are assumed, often without objective evidence, to have limited genetic capacity for higher productivity. Appropriately, ILRI leads in confirming the value of these breeds. They live in subsistence or near-subsistence economic systems and what potential for technological improvement exists is limited by understandably risk-averse lifestyles and often related infrastructural deficiencies. In such circumstances, if research is to be judged by its impact, it needs to be matched by development analysis. For example, belated development of infrastructure and policy change has led to adoption of technologies decades after they had been assumed to have had no impact. Livestock research needs this context, perhaps more than crop-based research.

Past agricultural development analysis has often ignored alternative worldviews of the real poor. One example is assumptions that nomadic pastoral systems tend toward sedentary mixed crop-livestock systems, but this is not universally true and where it occurs may be because policies force such transition. Dire outcomes can result from such assumptions, such as evidenced in the 70 years of well-intended enforced settlement of Mongolian pastoralists. Of course, increases in human population can cause pastoral systems to exceed natural resource resiliencies, but other development components such as education and health services need to be factored into such analyses before reaching conclusions about the viability of pastoralism. In any case, pastoralism is usually the only productive use possible from environments where it has persisted, and ruminants are able to utilize fibrous plant material that has no alternative use. Unclear pastoral land rights are similarly a reflection of a sedentary agricultural orientation to development.

⁶ Livestock products include: food; regular cash income from milk, eggs, hair and small animal sales; emergency cash generation flexibility; periodic nutritional balances; nutritional supplements; barter and exchange possibilities; savings that accumulate interest through births; risk-management from diverse income sources; draught power for owners and renters; traction of wagons for passengers, produce and inputs; dung for fertilizer, cooking, heating and house plaster; conversion of unused resources into food; employment; social support networks and mutual insurance, and cultural roles that vary from sacrificial ceremonies with associated health benefits to status items that maintain a social structure.

Rather than assume that existing policies define the research context, objective research such as in ILRI's targeting activities define the context of such livestock systems that will be with us for the foreseeable future and which we understand less about than we do for mixed crop-livestock systems.

Mixed crop-livestock systems in Asia as well as Africa, offer perhaps the greatest potential for assisting the poor through research. This extends beyond technical research to such areas as socio-economics and policy to inform decisions on whether to protect smallholders from being displaced by factory farming. Linked with this is continued reliance on proven indigenous genetic resources, which as in pastoral and landless systems, incidentally assists conservation of genetic resources in a manner more likely to be sustainable than industrially oriented activities. Landless livestock production conducted in backyards or unused lands is a means by which the poor apply their labor and limited capital to economic and nutritional benefit, and thus represents a further valid area of pro-poor research.

Within the wide and diverse needs of international livestock research for the benefit of the poor, ILRI has taken different approaches according to the trends of different epochs, and these responses inform us of ILRI's current iteration. Beginning by seeking a single technical solution such as a vaccine or new breed, a broader conception evolved that considered the value of a wider range of livestock products such as draught and milk, and this has now been further widened to accommodate some of the profound complexities of interrelationships in traditional production systems. These three faces in ILRI may be seen as; the separate ILCA and ILRAD initiatives (1973-1993), the phase of merger and consolidation under Hank Fitzhugh as the DG (1993-2001) and the current systems approach steered by the present ILRI DG Carlos Sere (2002-). The former two are well documented in past files and in the minds of some external observers, while for this EPMR the present approach of holistic systems – from production, to markets, to institutions, to policy – sets the context.

ILRI's current approach in the light of all the above has been to select a common conceptual framework for discussion and planning. This is based on defining the determinants of beneficiary well-being and then identifying interventions for improved policies in order to identifying practical research opportunities. From this logic, actions are derived to secure livestock assets, improve livestock system productivity and to improve market opportunities. This is hardly revolutionary, which should provide comfort to donors that past work has been useful and is being built on in a systemic manner. This emphasis on working within systems has already revealed some deficiencies in some past development assumptions, such as the risk of adopting research outputs often being too high for the absolutely-poor unless some protection or confidence is provided. Such security may be assisted through participatory planning of research. A specific type of researcher for a specific research approach is therefore required, which seems to favor those educated in development environments.

1.2 ILRI Operational Context

Attempting 'to reduce poverty and enhance sustainable development through research' across the globe on an annual budget of some US\$ 34M would be difficult for a mono-commodity center, and is even more complex for ILRI with its responsibility for all domestic animal species of the poor in integrated social, economic and technical systems of production. Clearly, ILRI cannot be expected to conform to conventional modes of livestock research management and must take a different approach to its work in a declining funding environment. Figures

presented in the financial management section of this EPMR indicate that in constant 2005 dollars the ILRI budget declined after merger and has been largely rebuilt to a fairly constant level since 2002.

As a product of the merger of ILCA and ILRAD, ILRI manages within a unique organizational and geopolitical heritage. It also inherits the orphan role assigned to livestock in agricultural science and the perceived failure of at least one of its antecedents to meet its objectives. Being assigned a global mandate at merger placed ILRI in a disadvantageous resource position compared to the four mono-crop Centers established in the CGIAR some 35 years earlier. Nevertheless, ILRI has produced some remarkable outputs, and it has also undergone much internal self-analysis and revision.

Also unlike most CGIAR Centers, ILRI has been forced to radically revise its structure, mandate, approaches and self-image as a result of merger and changing external circumstances. In so doing, it has achieved international best practice in some cases, such as its biotechnology research, yet more focus and quality control is needed, which the Board and management seem to appreciate in facing high-level issues specific to ILRI.

The meta-issues facing ILRI may be captured by such polarized and leading questions as: Is it the international livestock research center or the cattle center for Africa? Is it a rehashed convergence of ILCA and ILRAD activities or is it a genuinely new vision for livestock research? Are its MTPs shaping the research agenda or is it formed by the funding environment? Is it creeping into development activities or is it engaged in insightful research designs suited to development outcomes? Does ILRI overemphasize the assumption of a 'revolution' that may trickle down to the poor, or is it reorienting to an emerging marginalized livestock sector? And if ILRI did not exist, how would global livestock needs of the poor best be approached? These questions – some implied and some verbalized – challenge management and governance, and also in general terms the CGIAR and the EPMR. They provide a basis for checking the analyses presented in this report and we therefore return to them in our final section.

1.3 The Residual Effects of the Merger

ILRI displays the vigor of a younger organization, perhaps as a result of its hybrid birth from two older institutions. Yet such heterosis is accompanied by identifiable traits of each parent, such that one Theme looks a little like ILRAD and one can see ILCA in other Themes. Since 1999, ILRI has been slowly metamorphosing into a new institution with a different mission and approach to that of its antecedents. External observers may not have noticed this gradual change, which has required planning, management, recruitment, organization and supervision of activities while continuing to meet past agreements and wider CGIAR requirements. The previous EPMR described an institution that was recoiling from an ill-planned merger while searching for a future role. While largely recovered from that recoil, ILRI is now different from the sum of its former parts.

The current MTPs (2006-2008 and 2007-2009) are the continuing instruments of reorganization around multidisciplinary teams in a limited number of themes – a major contrast to the discipline-based structure of the past. It is this structure of activities that confuses onlookers who expect to see broadly-based geographical or technical programs and find only 'Themes' stretched across locations and disciplines with the expectation of generic outcomes that will serve a wider global audience. Thus discipline-based and geographically-specific research projects have been

replaced, in conceptual terms at least, by firstly defining where research can be useful and understanding the drivers of change in livestock systems (Targeting Opportunities Theme), understanding change processes and influencers (Enabling Innovation Theme – now merged into Targeting Opportunities Theme), determining market access (Marketing Theme), producing biotechnologies to suit the previous three situations (Biotechnology Theme), and then understanding the interactions between the major components of the system in the People, Livestock and Environment Theme 5.

Reforming financial and other systems has occurred in parallel with reengineering the organization. ILRI considers that its funding has increased since the last EPMR, although as indicated earlier, the real quantum has at best been maintained and proportion of restricted funds has increased. Reserves management has been conservative in preparation for infrastructure investment and places ILRI among the most prudent of CGIAR centers.

But before presenting great detail, it is important to say that donors to ILRI should be particularly pleased with the process of self-reinvention of which they are part, for ILRI is best conceived as a partnership with its donors as it increasingly adds value to donor ideals and policies related to research for development. Now, in 2006, it is not possible to say ILRI as a simple cobbling together of ILCA and ILRAD programs. Of course, some programs continue – as they should, but the processes of planning and reorganization of activities and management systems has integrated these continuing programs with new activities that enhance the probability of beneficial research outputs and in some cases, direct development outcomes. The transformation of its parents into ILRI has, through its planning processes, also acknowledged many changes in the external environment.

1.4 External changes

Drivers of change in the external environment have become more evident in recent times and interact in a manner that is determining the role and nature of ILRI. Among these drivers are: (1) changes in donor support; (2) uneven technological development; (3) information technology (IT) developments; (4) international legal developments; (5) CGIAR reformation, and (6) shifts in the socioeconomic environment of ILRI's targeted beneficiaries.

1. Donor financial support for the CGIAR Centers in general has not kept pace with development-oriented donor funding over the past decade and has only partially been replaced by project-specific funding, and often under conditions that unrestricted core donors will fund the full overhead costs of projects. At the same time, contributions from the World Bank, which come with requirements over CGIAR programs, have been tied to other contributions in a competitive fundraising environment. In the case of ILRI, major reductions in funding accompanied the latter days of ILRAD and ILCA and the 'lost' funds have been difficult to replace in real dollar terms, and the gap yawns wider when new funds are tied to specific projects or programs. Coupled with these changes is refocusing of the international agenda around such foci as the Millennium Development Goals.
2. Technological changes in molecular genetics and genomics for example, have advanced rapidly in recent years and are expected to continue. While mainly oriented to humans and plants, spin-offs exist in the animal sciences, including the implications of crop-residue quality and quantity for the animal feeds of the poor. Commercial opportunities in the field are dominated by private sector interests that engage contract researchers in

government and university research bodies. ILRI should not compete in this arena, yet it also cannot assume that commercial interests will develop products of value to the poor or the food insecure. Such a change in the external environment behooves ILRI to remain informed of developments in the field as a knowledge-broker for those who act on behalf of the poor.

3. Information Technology continues to develop quickly and to offer potential benefits to the poor and poor countries through information access and even education and training. However, increased dependence of researchers on real-time interaction across high-speed links to utilize databases and capacity in other locations may well be limited by the location of CGIAR scientists in countries with poor IT access and services.
4. Legal frameworks have advanced for the IPR of genetic resources, which have been regularized by the Convention on Biological Diversity of 1998 by establishing national sovereignty over genetic resources.⁷ Together with patents, such regulations primarily affect CGIAR crop Centers, with the exception that forage species and the Forage Gene Bank continue to be managed within ILRI.
5. CGIAR 'renewal' has encouraged the reorientation of ILRI focus to poverty reduction. Changes within CGIAR itself have included ILRI in leadership of the MTP process for Eastern and Southern Africa, the SLP (since 1995) and various chair and committee roles. CGIAR is now attempting to reduce fragmentation through development of a coherent research agenda to address 20 system priorities related to: conserving animal resources; genetic improvement; high-value products; natural resources management, and policies and institutions.⁸ ILRI contributes to each of these five overarching priorities but not to all 20 detailed priorities.
6. In addition to these drivers, ILRI's ultimate client base is also changing. This is partly the so called 'livestock revolution', which may be placed in an overall development context of continued rising affluence in Asia accompanied with an increased separation between subsistence and commercially oriented systems, and the now-critical marginalization of some pastoral and landless livestock systems.

1.5 Responses to 1st EPMR

The first (1999) and only previous EPMR of ILRI produced 14 recommendations (28 items). ILRI's self-assessment of actions in response to recommendations and the 2nd EPMR Panel comments on the implementation are presented in Annex 5. The Panel considers that ILRI has fully implemented nine of the recommendations. Other recommendations have been addressed partially or not at all, mainly because they were superseded by events or ILRI taking wider actions that subsumed the intention of the recommendations. In these areas ILRI has exceeded the actions recommended by developing strong scientific leadership and incisive decision-making; integrating global evaluation of all animal feeds with nutritional evaluation of dietary options; reorganization of the institute, and ceased some operations in the LAC region. Those areas where some further action is pending include more *ex ante* impact assessment than that housed in the Targeting Opportunities Theme by addition of *ex post* impact assessment, and operationalizing the global mandate in terms of staff operating bases. The previous EPMR was upbeat about the critical role to be played by a revamped ILRI but it failed to relate resources to the challenge of expanding globally. Thus it is concluded that ILRI has not only implemented the

⁷ The International Treaty on Plant genetic Resources for Food and Agriculture of 2004 addresses the exchange of plant genetic resources important for food and agriculture to allow multilateral exchange of germplasm for major food crops.

⁸ System Priorities for CGIAR Research 2005-2015. Science Council, 2005.

vast majority of the recommendations that were practical, but has exceed their intent in some cases. Means of continuing to improve ILRI form the basis of ILRI planning, which is discussed in Chapter 2.

2 STRATEGIC PLANNING AND PRIORITY SETTING

ILRI's strategic directions and priorities have improved markedly since the 1999 EPMR and in the 11 years since merger, these have yielded management documents that reflect ongoing changes in direction and focus, including changes in structure and function. The 2006 EPMR looked at a number of issues important to ILRI planning at the present time: the assumptions on which plans are based, the strategies to implement the mission, financial planning, determining priorities and geographical considerations, and to the extent it still had an effect, the integration of the parent entities.

2.1 Strategic Assumptions

MTPs need to define the objectives, strategy and activities that combined with available resources identify ILRI's niche. This begins with defining the target beneficiaries and then determining the modes of assisting them through research; matching priority research areas with potential partners and donors; and then designing the means of influencing the international agenda and other researchers while conducting high quality scientific research that levers other funds and benefits.

ILRI planning is based on three premises: the Livestock Revolution, the multiple roles of livestock in the livelihood strategies of poor people and the need to address global issues. The latter premise reflects the reality of livestock in various systems, from social to economic, from farming to nomadic – and as such is appropriate to the mandate to “reduce poverty and enhance sustainable development through livestock-related research.” The Livestock Revolution is used by ILRI, and now some other agencies, for the trend of market development. The Panel is pleased to see Livestock Revolution terminology better contextualized in the new MTP, with a clearer acknowledgment that increased demand for livestock products potentially increases environmental pressure and threatens to further marginalize poor livestock keepers.

In noting that rapidly developing economies consume more meat and dairy products, ILRI aims to “reduce poverty by enhancing the participation of poor people in dynamic livestock value chains” This takes ILRI beyond working only with be the poorest livestock keepers. The strategy also recognizes threats to the poor from trends in consumption, and ILRI's response has been to orient its assistance to this group to policy safety nets based on perceived rates of return on ILRI's investment. Policies that empower the poor are to be applauded, but the integration of policy research for the very poor in ILRI research could be better enunciated.

ILRI's mandate orients it to the global role of livestock in crop-livestock and subsistence farming, traditional nomadic pastoral, landless and other poverty-related livestock keeping systems. In fact ILRI's programs, activities and donor contributions support this orientation. The Panel suggests that the MTP balance the importance of the expansion in livestock product demand with clear explanations and operational details of activities of benefit to the really poor and marginalized livestock keepers.

Another approach to analyzing priority setting is to investigate the processes of project initiation, the allocation of unrestricted funds, and the relationship of objectives to such specific indicators as animal species. Such an analysis indicates that the MTP process is top-down for general implementation plans that allow Theme Directors to develop OPs in a bottom-up process consistent with strategies within funding availability. While unable to determine how real

stakeholder inputs feed into planning processes connected to the development of MTPs, the Panel finds that ILRI's general approach yields pragmatic priority setting reflective of the external environment.

For the allocation of unrestricted funds, ILRI acknowledges broad CGIAR System priorities, donor realities, stakeholders interests including regional and sub-regional research organizations (in Africa at least) and global livestock-interested bodies. Theme directors receive a rolling three-year allocation from core funds to make strategic appointments to new areas and attract funds for larger projects by matching contributions. Core funds are also allocated to rapid response and politically charged areas; a current example is Avian Influenza. ILRI maintains that its defined priorities managed through incentives is balanced by a quality management process in which concept notes and proposals are all reviewed for congruence with the strategy.

In terms of priority setting with respect to species, ILRI, while responsible for all agriculturally important livestock species, makes no specific allocations on this basis, which perhaps explains ILRI's traditional and dominant emphasis on cattle, and to an extent, small ruminants. Overall, the Panel concluded that the process of setting and managing priorities has continuously improved and that the next steps include specific actions to meet the broader livestock mandate.

2.2 ILRI's Mission and Strategy

ILRI's mission is still valid and appropriate: "to reduce poverty and enhance sustainable development through livestock-related research." The mission is divided into three general "pathways": securing the assets of the poor, improving the productivity of their livestock systems, and improving market opportunities. Clearly ILRI cannot accomplish all that these pathways imply, and hence its strategy includes influencing of others to also contribute towards these ends. Seventeen (to be 15 after January 2007) Operating Projects (OP), including SLP projects, are grouped into four (previously five) Themes: Targeting Opportunities and Enabling Innovation; Market Opportunities; Biotechnology; and People, Livestock and the Environment, into which the ILRI-related research activities of BecA and IPMS can be seen to be subsumed. Capacity strengthening is embedded in most projects and is overtly recognized as a significant component in many.

The Themes grew out of the issue-driven restructuring of ILRI linked to the adoption of a new strategic plan in 2002. Themes incorporated a number of pre-existing projects that were consistent with the new strategy, and rationalized the termination or completion of a number of old projects over the period 2000-2006 (Table 2.1). Given the relatively long-term nature of livestock research, the development of a theme-based strategic framework indicates a laudable effort to reshape ILRI's focus. Themes are flexible in nature and can accommodate changes in the external environment, as well as the changes within ILRI as an institution.

The OPs reflect an approach to gender inclusion and awareness uncommonly mature in research planning. This results from the mode of operation of the Targeting Opportunities and Enabling Innovations Theme, which underpins all research in the ILRI plan, and to the systems approach employed throughout ILRI. An ILRI commitment to participatory research inherently includes all players. This ensures that ILRI deals with all persons in a livestock area, including children where they are engaged as herders, for example. The Panel notes that the level of gender inclusion and awareness accrues both from the overall approach of ILRI and because the role of women in livestock, although it varies widely, is particularly important across cultures. This fact

and ILRI's approach will ensure a continued openness to gender without the need to address it as a specific issue in planning. To consolidate its gender-related findings, an 'Innovation and Impact' monitoring unit in the DDG's office will include gender in its scope of work.

Table 2.1 Discontinued ILRI Research (2000-6)

Research Area	ILRI's Reason for stopping
Tryps vaccines	Low probability of success
Rumen microbes; detoxification	Alternative suppliers; Lack of critical mass
Greenhouse gases from animals	Alternative suppliers; Limited applicability
Feeding trials for different rations	NARS role; Reoriented to crop-feed research
Ethiopia Highlands & Mountains	Too location-specific; Resources better elsewhere
Livestock – Malaria research	Limited importance of livestock
Trypano-tolerance field work	Poor outputs; No success in converting research
Dairy technology	Location specific NARS activity
Smallholder dairy program	Completed in Kenya; Broadened to global level
Poverty diagnosis and mapping	Resources shifted to strategic interventions

2.3 The Process of Planning and Reporting: MTPs

In ILRI's complex social, economic, political, cultural and biophysical working environment, the MTP becomes the primary instrument of communication and management. ILRI strategy and plans as presented in MTPs serve to document the gradual process of consolidating ILRI and resolving the last vestiges of the merger. Past programs have been assessed and difficult decisions to terminate activities have been made and staff have either been deployed or have left ILRI. Past programs or expertise cannot be recaptured or easily recreated, which argues for the criticality of the MTP. ILRI management should be congratulated on the progress made, which is often not visible in the minutiae of short-term plans.

Overall, analysis of the MTPs indicates that ILRI has transcended much of the old ILCA+ILRAD structure and confirm that ILRI has increased emphasis on social, economic and institutional aspects of livestock research while retaining a few areas where it has a specific advantage.

As useful as MTPs are, more consistent reporting within the MTP format would assist both monitoring and review functions. As part of the progressive improvement of MTPs, the Panel considers the next step to be clear indications of who is responsible for outputs and what resources are allocated per activity. Once the ten year contextual plan and MTPs are as comprehensive as they should be, the active MTP should be the only document required for planning, monitoring, reporting and resource management.

Existing MTPs also indicate that in addition to the elimination or evolution of existing projects, new projects have also been initiated (see Annex 6 for a diagram of evolution from old Projects to new Themes and Operational Projects). The presentation of activities within the MTP heightens the impression that management of systems-research is complex. Reporting of outputs by Themes in some cases and projects in others, hides regional or disciplinary outputs and thereby adds an additional analytical task when making the case for a global presence. Creating more transparency in reporting regional activities would seem to support ILRI's rationale for its structure as a means of breaking down past programmatic and geographical silos – including an

overwhelming east African focus. A cross-cutting reporting structure for geographical coverage, at least, is needed for the MTP to fully reflect ILRI's mandate and strategy.

The MTP process is also linked to a rolling three-year budget cycle, which should be seen as an opportunity to develop more nuanced and strategic business plans. Within the general funding constraints and greater reliance on restricted funds, two issues need to be considered: the value of periodic zero-based reviews of projects, and an aggressive approach to full cost recovery on projects supported by restricted funds.

Zero-based reviews examine ongoing projects for the benefits of their continuation. It forces projects to re-argue their value in the medium and long-term in order to justify the continuation and level of resource allocation, and helps to resolve the natural inertia that grows around projects over time. Reviews are typically conducted on a three-year schedule. In addition to questioning a project's continuation, reviews should also consider restructuring projects to improve efficiency and perhaps merge with other projects.

Full cost recovery for projects, particularly those funded with restricted funding, is a critical financial practice as the number of short-term and restricted projects grow. ILRI's financial performance indicator of for indirect costs for restricted projects indicates some way to go in the full recovery of costs. Refining costing and budget methodologies to ensure as full a recovery of indirect costs as possible requires enhanced accounting capacity in budget development and monitoring and reporting. The Panel, therefore, urges progressive improvements to full cost recovery for restricted projects to provide ILRI with the maximum discretion possible over the use of its unrestricted resources.

Considering the competitive operating environment, the substantial assets of ILRI and the naturally long horizon for measuring results in livestock research, ILRI should expand its planning horizon to complement the MTP. The Panel **recommends** a planning cycle in which strategic vision and goals with ten year horizons yield strategic five-year business plans, operationalized annually. (Recommendation 1)

Enhanced planning for longer intervals would not impede the planning and monitoring required for MTPs and would strengthen overall strategic planning, resource development and resource allocation.

2.4 Priority Setting

In addition to CGIAR priorities, ILRI notes that its priority setting is based on such criteria as: impact on poverty, user-demand, ILRI's value-adding capacity and creation of IPGs. The Panel was unable to satisfy itself that donor influence and resource availability were not significant factors in priority setting, which is normal and would be expected in the current funding environment and which is understood by ILRI. Because of this, the planning process needs to recognize such external forces in an open fashion. The policies and actions of global investment banks and donor organizations with respect to livestock development and research are a critical component of the planning context and should form an analytical prelude between the mission and the strategy by which ILRI may make an impact. It is suggested that future ten year plans and MTPs include a summary of detailed analysis livestock research and development in general, and that if ILRI does not have this capacity that it seek external assistance.

As ILRI differs from most CGIAR centers in covering more than one or two staples, priority-setting also extends to geographical coverage and choices about animal species, which in addition to cattle might be expected to include poultry, goats, sheep, pigs and perhaps even less conventional species like rabbits – even though some species, regions and approaches may be then be rejected in the targeting of global issues.

2.5 Contributions to CGIAR System Priorities

Livestock research is emphasized in the CGIAR System Priorities (SPs). ILRI's research contributes to topics within all five SP areas. Some of ILRI's research is directly geared towards specific goals identified under three of the SP areas, and other research components contribute to those goals: SP1, *Sustaining Biodiversity for Current and Future Generations*; SP2, *Producing more and better food at lower cost through genetic improvements*; and SP4, *Poverty alleviation for sustainable management of water, land and forest resources*.

In SP1, the major area of ILRI's emphasis is on 1C, *Conservation of Indigenous Livestock*, mostly from the Biotechnology Theme and with some from the Targeting and Innovation Theme. In addition, some research relates to 1B from the perspective of conservation of forages. ILRI's research related to livestock breeding is relevant for SP 2D (Genetically enhancing selected high-value species) and its work on food-feed crop and forage selection with (CGIAR crop centers) addresses 2C. A large part of ILRI's research is directly geared towards SP 3B, *Income Increases from Livestock*, including research conducted under the Themes of Markets and Biotechnology. Research under Theme People, Livestock and Environment contributes to 4D, *Sustainable Agro-ecological Intensification of Low- and High-Potential Environments*, 4A, *Integrated Land, Water and Forest Management at Landscape Level* and 4C, *Improving Waster Productivity*. ILRI considers that the second largest Priority area that its research contributes to, is SP5, *Improving Policies and Facilitating Institutional Innovation to Support Sustainable Reduction of Poverty and Hunger*, where all priorities are covered, especially 5D, *Improving Research and Development Options to Reduce Rural Poverty and Innovation* as this is the major activity of the Targeting and Innovation Theme. The Panel considers that this research is also relevant to ILRI's livestock and natural resource management related research.

The Panel concludes that ILRI's research seems to fit very well with those SPs which address livestock issues, including livestock related institutional and policy areas. However, there are some areas, such as zoonotic animal disease where ILRI's engagement may be justified, while they are not within the SPs.

2.6 Geographic Prioritization, Global Coverage and Regional Activities

In 1995, the newly formed ILRI explored the meaning of a global mandate through workshops with partners that produced inventories of researchable livestock issues beyond the scope of its predecessor organizations. After confirming that most of the poor and poor livestock keepers resided in South Asia (36%), SSA (30%) and SEA (11%), ILRI's considered its most appropriate niche to be SSA with some activities in South Asia and liaison presences in China and SEA. ADB, ACIAR and IFAD assisted early work in SEA that subsequently ceased, while South Asian work focused on partnerships with ICRISAT, and demonstrated the benefit of such inter-center leverage. Details about ILRI's current activities in Asia are given in Annex 7.

ILRI's theme-based structure, which operates through Themes rather than regions or disciplines sets ILRI apart from NARS' structures and orients ILRI to IPG-related research. However, it also tends to orient the geographical coverage of its work to content and ideas more than loci of operations, which is confirmed by the majority of IRS (94%) being based in Africa.

The Panel understands and queries ILRI's contention that it achieves its global approach through IPG research it conducts and that there is a continued priority placed by international donors on SSA. The Panel also sees the strides ILRI has made in initiating viable global presences and the improved efficiency it has experienced with global sites that are well-selected, particularly when associated with other CGIAR centers, and encourages ILRI to locate a greater proportion of its staff to other regions. While addressing globally important issues from one base may be appropriate for a policy institute in a developed country, ILRI is now at a stage of addressing its global presence to enhance its credibility outside east Africa.

As an illustration of the benefits of raising ILRI's profile in other geographic regions, the Panel considered the perceived value of ILRI's role and agenda in the Asian-Pacific region as reflected by the relationship between ILRI and donors that focus on the region, especially Australia and Japan. Australian funding of IARCs, channeled through ACIAR in an usually transparent and policy-driven approach, totaled about A\$10M (US\$7.5M) in 2005 for both core funding (55-60%) and projects that met partnership, geographical and performance guidelines (40-45%). For core funding, which is allocated according to sustained impacts of a CGIAR center in the Asia-Pacific region, ILRI has now slipped to the lowest funded category. Regardless of the amounts of funds involved, given the disproportionate influence on the Asian agenda enjoyed by Australia and its interest in livestock, its decisions with respect to ILRI can send a perhaps erroneous signal to other donors interested in the region.

Funding from Japan tells a similar story. Its contribution to CGIAR in general has declined from 12.6% in 1995 to 3.3% in 2004 with an emphasis on IRRI (29.6%); ILRI received only 2.2% of its funds from Japan in 2003 and 2004, and in 2005 and 2006 received less than US\$250,000. The small amounts committed to ILRI from donors who are active in Asia are only one indication of ILRI's perceived relevance to the region. It seems that more than one donor views ILRI as an African-focused institution. The balance between dispersed activities and staff location, and between mandate responsibilities and necessary focus is a constant factor in donor relations and requires diligence to maintain.

In stating that ILRI will, after 2007, expand "South Asia operations to include market opportunities, livestock feeding, emerging diseases, utilization and conservation of animal genetic resources, crop-livestock integration and issues associated with the intensification of livestock systems" ILRI implies the allocation of significantly more resources and ILRI-led projects. As this does not seem achievable by simply linking Asian activities with those of SSA, the Panel assumed that staff and budget would clearly be allocated to Asia, although this is not yet evident in the MTP. Intentions to "work with other CGIAR Centers in the latter regions" is similarly laudable and the preferred mode of operation, yet the implementation of this intent is similarly not easy to find in the plans.⁹

The Panel feels that the previous EPMR was overly ambitious in implying the ease of global expansion without major resource reallocations. Having formulated an approach to global

⁹ ILRI Medium-Term Plan 2007-2009: Livestock - A Pathway out of Poverty.

involvement within its resource base since 2002, ILRI is now challenged by the need to establish its reputation globally through reasonable levels of presence. The Panel sees this challenge as one that ILRI has struggled with since it was founded, and continues to attempt to resolve. With flexible Themes and the BecA initiative now advanced, it is time for this challenge to be accepted, for a critical mass of staff to be located in other CGIAR locations (for example, ICRISAT and IRRI), and for alternative delivery mechanisms to be tested in other areas.

The ambition of global impact requires a more geographically distributed allocation of a critical mass of resources. Projects with global outcomes can beneficially be managed from locations other than east Africa. *The Panel therefore recommends that ILRI redefine its physical location strategy (using CGIAR Centers wherever possible) and its modus operandi for each region.* The Board should assess progress in three years through external review. (Recommendation 2)

3 RESEARCH PROGRAMS

With the adoption of its strategic plan “Livestock: A Pathway out of Poverty” in 2003, ILRI revised its research strategy and reframed its programs and management structure to achieve its goals. Changes to the plan over the intervening years reflect an evolution of the strategy shaped by experience as well as deliberate adjustments to the plan to improve its results. These changes and adjustments reflect positively on the ability of ILRI’s board and management to remain responsive to changes in ILRI’s operating environment and in its capacity and strategic advantage.

In this chapter the Panel examines ILRI’s present research activities within the most recent iteration of its Theme-based structure, which now centers on four Themes.¹⁰ Three of these Themes are based on specific problem-solution domains:

- Livestock Markets (Markets)
- Biotechnology for Animal Health and Genetics (Biotechnology)
- People, Livestock and the Environment (PLE)

These Themes are underpinned by an additional Theme that concentrates on cross-cutting issues:

- Targeting and Innovation. (A Theme resulting from a combination of parts of two earlier Themes that will be finally completed by financial integration in January 2007)

Research activities linked to two specific projects, BecA and IPMS, can also be found reflected in the Themes, and are discussed as part of this chapter. One conception of the interrelationship of these Themes and projects is presented in Figure 1. It can be understood as the first three Themes listed above presented as separate yet related, cut across by a fourth Theme called Targeting and Innovation as well as by the large IPMS project and a separate CGIAR funding mechanism, SLP. All aspects are interrelated, as indicated by the circular arrows. The diagram differs from those presented by ILRI and in the opinion of the Panel makes communicating an otherwise complex structure easier for those not within the system.

Within each Theme, research is implemented in three to five operating projects (OP) that focus on research outputs. Cohesion between the Themes is encouraged by a common focus on three outcomes:

- Securing Assets to Reduce Vulnerability
- Increasing Productivity to Improve Livelihoods
- Increasing Incomes by Enhancing Market Competitiveness and Access

An overview of the research staff input (IRS only) in each Theme is presented in Table 3.1, which demonstrates that, although a limited number of staff are allocated to more than two Themes, most are allocated to two or one. Because Themes are issue oriented and multidisciplinary, staff allocation across Themes and OPs is necessary.

¹⁰ ILRI Medium-Term plan 2007-2009.

Figure 3.1 Interrelationships of ILRI Themes and projects

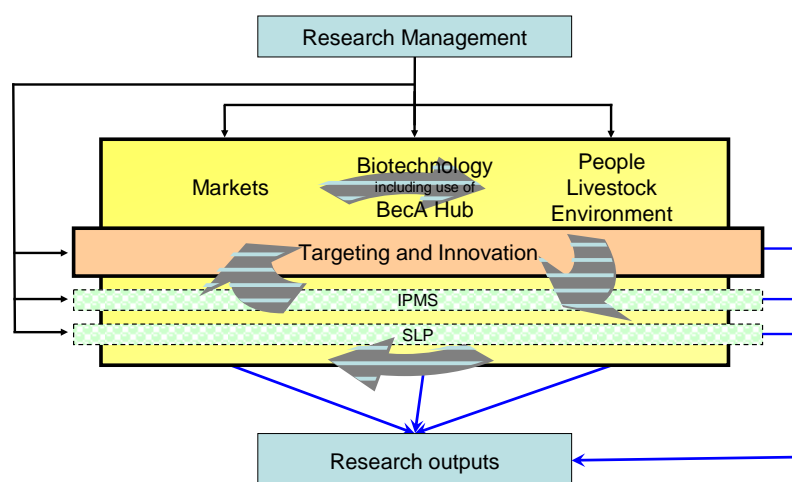


Table 3.1 Allocation To, and Input Into, ILRI Themes for IRS staff (fte), September 2006

Allocation to:	Input into:						Total
	Tar	In	Mar	Bio	PLE	IPMS	
Targeting (Tar) ^{ab}	12.0	0	0	0	1.0	0	13.0
Innovation (In) ^b	0	7.9	0.1	0	0.2	0.5	8.7
Markets (Mar)	0.5	0.4	9.4	0.2	0	0.5	11.0
Biotechnology (Bio)	0	0	0.1	18.9	0	0	19.0
People, Livestock and Environment (PLE)	0.6	0.1	0	0	11.8	0	12.5
Overall	13.1	8.4	9.6	19.1	13.0	1.0	64.2

^a Junior scientists and post-docs make significant contributions to this Theme.

^b Currently being reallocated to "Targeting and Innovation" and a unit in the DDG's office.

3.1 Targeting and Innovation

This is a combination of two themes – Targeting Opportunities, and Enabling Innovations, both of which cut across other Themes. The decision to combine relevant parts of the Themes occurred during the Panel's review and we therefore present the discussion on that basis to facilitate future discussions. However, as work to date has been conducted separately, we divide this section into the two original Themes, Targeting Opportunities and Enabling Innovation. The staff complement is shown in Table 3.2.

Table 3.2 Disciplinary background of Targeting and Innovation Theme professional staff

Disciplinary background	Targeting		Innovation	
	IRS	NRS	IRS	NRS
Economics	7	2	2	
Natural resource management	6		2	
Modeling	1			
Animal health related sciences			3	1
Animal science				2
Rural development sociology		1		
Project management			1	
Forage breeding			1	
Total	14	3	9	3

3.1.1 Targeting Opportunities

The Theme aims to influence and support policy making and the setting of livestock research priorities by: assisting other themes to better understand livestock-based systems; identifying prevailing constraints in livestock systems and proposing viable opportunities for research; and additionally carrying out *ex ante* impact assessment to guide to the future research agenda. The Theme is organized in three OPs: livestock systems evolution (OP1), poverty, sustainable livelihoods and livestock (OP2), and targeting pro-poor livestock interventions (OP3).

OP 1 – livestock systems evolution – could also be called the “strategic engine of ILRI,” as it synthesizes changes in livestock systems to determine the drivers of change. It focuses on emerging trends and their drivers including consumption demand, trade patterns, land use change, water-livestock dynamics, and climate change. This includes development of future scenarios of livestock development and assessment of consequences for livelihoods and the environment. OP 2 – poverty, sustainable livelihoods and livestock – handles poverty and livestock dynamics issues by analyzing determinants of poverty (referred to as poverty mapping) from assessments of the role of livestock in poverty that integrate quantitative, qualitative and spatial analysis, and policy dialogue OP 3 – targeting pro-poor livestock interventions – deals with the typology of households, and development and improvement of analytical methodologies and decision-making tools. This OP also conducts impact assessments that guide selection of research topics and potential partners.

Achievements

All three OPs are discussed together because their outputs and impacts are interrelated.

The Theme’s work on poverty mapping and livelihood assessment has significantly influenced formulation of pro-poor policies and the setting of priorities for interventions in developing countries. An example from Kenya and Uganda illustrates that the poverty mapping has influenced national and sectoral policy decisions in favor of the poor. Development agencies such as the World Bank, EU and NGOs are utilizing such decision support tools as PRIMAS (poverty reduction intervention mapping in agricultural systems) and EXTRAPOLATE (*ex ante* tool for ranking policy alternatives).

In addition to the ILRI poverty maps themselves, the ILRI methodologies and tools for mapping have been adopted by development agencies including several governmental agencies and NGOs in Kenya and Uganda, as well as CIAT and CIP, which have used the approach in Colombia and Peru. In addition, spatial targeting tools have been used by FARA and its SROs in providing targeting criteria for the choice of the pilot learning sites for the SSA-CP. The same tools have been applied in the analysis of smallholder dairy systems in Uganda and India.

A recent (2005) CCER of this spatial analysis and systems modeling work commended the extent to which ILRI has applied these approaches and methodologies to its wider livestock research.¹¹ Achievements have also attracted other organizations to partner with ILRI, such as the ODI-ILRI-KARI association for *ex post* impact assessment of partnerships and processes for pro-poor policy change. In addition, ILRI is involved in FAO's Pro-poor Livestock Policy Initiative (PPLPI), which helps to raise the profile of livestock-based interventions in poverty reduction strategies. The Theme has produced 43 papers in peer reviewed journals in three years (1.1 per fte per year), which is below the ILRI average.

Future Direction, Relevance and Partnerships

This Theme is of unquestionable relevance to ILRI's approach and has achieved positive outputs and outcomes. Now, its content and future will be influenced by its combination with the Enabling Innovation Theme. Combination is logical insofar as targeting and prioritization of research activities go hand-in-hand with enabling innovation. Consequently, the combined theme should play a stronger role in providing strategic guidance in priority setting and targeting interventions across ILRI's research portfolio.

The dynamism of livestock systems means that continued understanding of systems change is essential to the design of pro-poor livestock research. The future focus of the new Theme should build on past conceptual work on risk management and risk coping strategies in pastoral and agro-pastoral areas. The outputs could then contribute to an emerging policy agenda on social protection.

This Theme is and should continue to participate in the SLP, particularly in the identification of drivers of change in major crop-livestock systems and livestock components of conservation agriculture programs. In addition, as many livestock production systems are rangeland-based and are in marginal and semi-arid areas, particularly in Africa where they form the basis of peoples' livelihoods, ILRI should continue its work in these areas, including active participation in such collaborative programs as the DMP and African Livestock (Alive). In designing future research work, the Panel feels that it is important to include pig, poultry and other small animal production systems, particularly in urban and peri-urban areas, where demand for products from such species is on the increase.

Assessment

The above achievements cause the Panel to see the Theme as having performed well in the past five years with the work on targeting pro-poor interventions being one of the Theme's key outputs. Without such outputs, it would have been extremely difficult for ILRI to maintain its

¹¹ The CCER team led by Prof Jeff Alwang of Virginia Tech (USA), made several recommendations, including the deeper use of GIS, spatial data and spatial models as analytical tools; use of more household model approaches that investigate the economic and social determinants of key household decisions, application of more integrated socio-ecological systems' approaches and capacity building for staff. The reviewers cautioned ILRI to avoid technical model development and focus on adapting models for ILRI data collection and outreach efforts.

image with clients and stakeholders in most parts of Africa. Its outputs also indicate that its professional staff and disciplinary mix are appropriate.

Nevertheless, the Panel sees the Theme as having concluded its most influential work in poverty mapping, because other institutions including some NARS can now handle such work. It is therefore with some satisfaction that the Panel notes that the Theme has already begun to disengage from poverty diagnosis and mapping activities in recognition of a growing loss of comparative advantage in the area. This decision may also have been influenced by the need to leverage past investments in poverty diagnostics in order to focus more on the analysis on livestock options for poverty reduction.

Impact assessment (both *ex ante* and *ex post*) is also conducted within this Theme and warrants comment. As the majority (75%) of *ex post* impact assessment studies for the past five years were conducted before 2001, the Panel expresses its concern that impact is not being given the importance it warrants.

As discussed in the following section concerning the Enabling Innovation Theme, the Panel commends plans to establish a separate gender and impact assessment unit to develop methodologies and other impact assessment tools, and to backstop the scientists in all the Themes.

3.1.2 Enabling Innovation

This is a difficult Theme to explicate, yet it is central to the ILRI research approach and is an indication of the creative manner in which ILRI strives to meet its wide mandate from a limited resource base. It is therefore important to discuss it separately before considering its integration with the Targeting Opportunities Theme and other ILRI units.

Essentially, the “innovation systems approach” studies all interactions implicated in plans to introduce change. In many ways it counters a narrowness that has crept into applied social science and economics, which is evident, for example, in limiting the educational origins of extension to a technology transfer role and narrowing faith in the factors of production to land, labor, capital and more recently, markets. By stepping back and using an innovation systems approach, the institutional and cultural contexts, rather than technological innovation alone, are seen as determining conditions for development. Within ILRI, innovation approaches may be better understood as a search for increased efficiency in linking research to outcomes. Through this, ILRI strives to inculcate an ethos of understanding the processes of innovation in its researchers as well as contributing to global knowledge development in the field of innovations research.

The Theme has demonstrated impressive impact among ILRI staff as a means of designing and conducting research that is likely to produce development outcomes, yet the Theme was unable to attract a new leader for over a year. Both facts stimulated management’s decision to merge the Theme’s research functions with the Targeting Opportunities Theme, and to move research support functions to a new unit to be created in the DDG’s office.

The Theme espoused great ambition, such as: to “access a network of people/organizations working in innovation; access expertise for mentoring and support of ILRI activities; build capacity within the CGIAR and partner organizations to enhance the overall understanding of

the innovation system approach; conduct innovation system studies to better understand the mechanisms that lead to improved capacity of a system to innovate, and accelerate institutional changes within ILRI, – spreading innovation systems ideas so that they are applied across the institute.”

In pursuing this ambition, each OP takes a different perspective. OP1 evaluates innovation systems to relate research design to development impact, and to define success indicators, processes of behavioral change and information generation and exchange up to the policy level. OP2 tests, adapts and develops technologies and delivery systems through practical case studies applying innovation systems approaches. OP3 investigates research partnerships that encourage institutional development. It is in this context that OP3 links with NARS, through networks such as AARNET. The Theme also encompasses monitoring systems for gender and impact assessment and databases for contextual information to complete feedback loops on understanding change in real situations. In essence, the Theme is a convergence of monitoring, databases and case studies, and a vehicle for reorienting the whole institute.

The Theme had nine IRS and three research NRS in the fields of economics (2), animal sciences (six including epidemiology and animal health), project management (1), natural resource management (2) and forage breeding (1). An eclectic mix but suited to a new and diverse field.

Integration with the Targeting and Innovation Theme

Merging the research activities of the Enabling Innovation Theme with the Targeting Opportunities Theme sensibly integrates cross-cutting approaches to targeting research and understanding its utility. The realignment results in an OP within the new theme on understanding the processes, drivers and impacts of change, and the creation within the DDG's office of an Innovation and Impact Unit for cross-institute monitoring of research, gender analysis and impact assessment. In commending the reorganization of the Enabling Innovation Theme, the Panel warns against research activities being conducted in the new service unit. The Panel also notes that AARNET, a partnership and service research network in Eastern Africa, may best be managed from the partnership unit, and that, case studies involving livestock keepers in situations of environmental and political conflict and instability could well be allocated to the People, Livestock and Environment Theme.

Achievements

The ambitious objective of influencing the whole CGIAR was discernable in the Panel's interactions with other Centers but further comment on this objective is beyond this EPMR. In terms of influencing the way that ILRI does business, the Theme has already shown impact. By 2008, OP1 is expected to have led to a broader understanding across the Center of the institutional and policy contexts that shape livestock knowledge production, and use processes. OP2 is expected to have identified generic principles that enhance innovation and promote equitable wealth creation and sustainable development. OP3 is expected to have identified new patterns of livestock R&D partnership involving public, private and civil society sectors.

The non-specific nature of these outputs makes monitoring difficult and this can undervalue the Theme. Specific outputs include having: assessed improvement of export market success through food safety regulations for poor producers; contributed to analysis of the causes and consequences of scaling-up of production units; defined trends for smallholder success in dairy markets through case studies in East Africa and Assam; assessed technical and policy options to assist small-scale producers in urban African markets; defined issues for rationalization of dairy

policies in eight African countries; and analyzed human health risks and mitigation measures associated with milk in Kenya. These have translated to outcomes such as: governmental formulation of pro-poor policies for small-scale milk traders; milk hygiene training programs conducted by NGOs associated with licensing and monitoring; and stimulating an IFAD Smallholder Dairy Commercialization loan to Kenya.

ILRI often presents the Kenyan Smallholder Dairy Project as an example of the innovation systems approach. The project operated within a productive inter-institutional and partnering environment that enabled efficient assessment of existing production systems, markets, and milk consumption patterns, and hence informed selection of technologies more likely to be adopted by producers. As the project has been extensively documented by ILRI, we do not report on its successes here.

The large Fodder Innovation Project in Nigeria and India began with DFID interest in unused technologies and brought ILRI into partnership with CIAT. Subsequent support from IFAD via the SLP narrowed the focus to dual-purpose crops and the reactions to changes in technologies and production factors that produced innovation, such as when new varieties of cowpea require different milling techniques.

Notwithstanding the Theme's successes, the Panel concludes that ILRI may not have a comparative advantage in innovation research except through its ethos of partnerships. The Panel was unable to discern whether partnerships such as with UNU reflect ILRI leadership or UNU's need for field sites – both of which are valid approaches. ILRI's inability to attract a Theme leader to east Africa suggests that either the field is not producing leadership specific to a subsector of agriculture such as livestock, or that ILRI is not a competitive or attractive home for such leadership.

Overall, the Panel wishes to highlight the Theme's success, but also emphasize that the approach is a current iteration of the continual ebb and flow of holistic versus reductionist approaches felt by all open-minded researchers.

Assessment

Science in the Theme appears to meet the general quality of the emerging field although ILRI has not made any leading contributions to the literature. Most Theme publications seem to be in the disciplinary fields of staff rather than innovation systems. This may be due to most of the literature in the young field focusing on theoretical underpinnings of the field itself, which suggests that ILRI case studies should soon be publishable. The IPMS project (see Section 3.7.2) with its innovations systems framework offers potential opportunities for just such case-study publication.

Overall the Panel suggests: that the unit in the DDG's office assume responsibility for developing capacity for impact assessment (*ex post* and *ex ante*) and gender analysis among ILRI researchers and research partners but not be engaged in research; that the Innovations Systems approach on which the ILRI operational strategy rests be acknowledged clearly in the profile of the combined Theme and be managed to generate publications, and that the rapid adoption of innovations in global contexts be one aspect of cross-center research.

3.2 Improving Livestock Market Opportunities

Research on livestock market opportunities is central to ILRI strategy to 2010, because improved marketing of livestock products is recognized as one of the major pathways for income generation by the poor. The rapidly growing and changing livestock markets in developing nations provide opportunities for income generation as well as threats. These are represented by the increasing integration of markets (national and international), the changing nature of food demands by consumers in urban centers, the changing regulatory environment for health and food safety, and an inability of smallholders to produce high quality products, because they lack technology, inputs, financial resources and up-to-date information.

Research activities in this Theme are organized into three OPs: Smallholder competitiveness in changing markets (OP1); Changing demand and market institutions (OP2), and Animal health and food safety for trade (OP3).

Smallholder competitiveness in changing markets (OP1) addresses two main areas: identification of constraints to and strategies for supporting uptake of improved production technologies, and contractual and organizational arrangements to support smallholder livestock producer's participation in markets. Changing demand and market institutions (OP2) focuses on the determination of the driving forces of change in the domestic market channels that are traditionally supplied by poor smallholders, including changes in demand for increased safety, uniformity, and higher levels of processing. In addition, this OP assesses the impact of the changes on the price of livestock products to poor urban consumers and strives to provide viable options for improving their access to low cost and safe products. Animal health and food safety for trade (OP3) seeks to identify animal disease control, health and standards certification methods and other strategies to improve access to markets by poor smallholders, with a focus on international and regional markets. It is also involved in the assessment of the cost of compliance with sanitary and other technical standards in those markets.

Currently (September 2006), the Theme has a staff of 20 professionals, whose disciplinary background is shown in Table 3.3. Based on ILRI's policy of sharing staff across themes, about half of this Theme's professional staff is shared in the following manner: Targeting Opportunities (five staff with time allocation of 6-50%), Enabling Innovation (three: 2-20%) and People, Livestock and Environment (one: 50%). In terms of geographical locations, the majority of the IRS are based in Eastern Africa (11 in Kenya and Ethiopia) and Latin America (3). The Asian continent has the smallest share, with one staff each in India, Vietnam and Syria, and there are none in the West African region since the departure of an experienced economist in early 2006.

Table 3.3 Disciplinary background of Market Theme professional staff

Disciplinary background	IRS	NRS
Economics	11	2
Animal health related science	3	
Animal Sciences and Nutrition	2	
Economic Policy		1
Total	16	3

OP1 and OP2 are discussed together because they are closely related, OP3 is discussed separately.

3.2.1 Achievements (OP1 +OP2)

The identification of technical and policy options for improving smallholder dairy systems mainly in East Africa has led to the improvement of the efficiency and food safety performance of small-scale producers and their agents and producers in urban markets. A good example is the formulation, rationalization and harmonization of pro-poor dairy policies in some countries of the East and Central African region – an effort which has been taken up and led by ASARECA/ECAPAPA, with ILRI playing the backstopping role. Based on these achievements and requests by national partners, these outputs are now being tested in the States of Assam and Andhra Pradesh in India.

It is also worth noting here that other development partners have taken up the results of ILRI's research on smallholder dairy systems, which has led into the design of large development projects. The same previously mentioned US\$20M IFAD-funded Small Dairy Commercialization Program, which targets dairy farmers and traders in poor districts of Kenya, used the results of the Smallholder Dairy Project in its design.

The work on livestock marketing systems of West Africa has also produced useful results.¹² The findings and conclusions of the study were used to develop four policy briefs as follows: (1) regulatory and administrative issues and options for livestock marketing in West Africa; (2) Lowering cross-border livestock transportation and handling costs in the central corridor of West Africa; (3) Livestock marketing channels, flows and prices in West Africa; (4) Promoting livestock marketing and intra-regional trade in West Africa. The briefs, which are in both English and French, are being used as references in policy formulation in West Africa.

The analysis of causes and consequences of scaling-up of individual livestock production operations, including dairy, poultry and pigs in fast developing countries (conducted in collaboration with IFPRI and FAO in Brazil, India, Philippines, Kenya and Thailand) has been useful in finding viable options for improvement of smallholder operations.

Most of the professional staff in OP1 and OP2 have published several papers and articles in international and regional scientific journals, making their research outputs more accessible to the various stakeholders. On average, each of the 17 IRS published (authored and co-authored) 1.5 papers in peer reviewed journals per year during the last three years. However, this is lower than the other ILRI themes, where the average is 1.9 papers.¹³ The Panel was shocked to learn that some 5 IRS (including both newly recruited staff and research managers) have not published a single paper in a scientific journal in the past five years. The Panel suggests that ILRI management review the reasons for such a failure.

3.2.2 Assessment (OP1+OP2)

The Theme has scored significant achievements in exploring improved market opportunities and these have been translated into policies, enabling smallholders and other small-scale traders to

¹² This CFC-funded project, (titled “improving livestock marketing and intra-regional trade in West Africa: determining appropriate economic incentives and policy framework”) had two components: market and policy research covered by ILRI and infrastructure development handled by CILSS (Comite Permanent Inter-Etats de Lutte contre la Secheresse dans le Sahel) and involved six countries, namely Burkina Faso, Mali and Niger (as exporters) and Ghana, Nigeria and Cote d’Ivoire (as net importers).

¹³ More details are in Chapter 4, section on quality of science.

reap substantial benefits out of dairy farming systems, particularly in East Africa. Given the fact that the Theme has completed several projects, it is important that at least some of these are subjected to *ex post* assessment by the new Innovations and Impact Unit referred to in the Enabling Innovations Theme.¹⁴

In cases, where *ex post* impact assessment is not possible, due to funding limitations, for instance, efforts should be made to conduct adoption studies for completed projects. The Panel has not seen any reports on adoption studies and suggests that such studies be part of the Theme's strategy and should be carried-out wherever feasible.

Despite the Theme's significant achievements, a lot of time and resources has been spent on smallholder dairy systems (mainly cattle), with limited attention to other smallholder livestock species, such as small ruminants, poultry and pigs, which are also important in poverty alleviation. The Panel is of the view that these other species need also to be addressed, not only for the sake of market diversification, but also to accommodate different farming systems, ranging from rural, peri-urban and urban, all which have different demands and economic opportunities.

One of the challenges faced by all OPs in this Theme is extreme geographical dispersion, with staff posted in virtually all the developing regions of the world – i.e. Latin America, Middle East, South Asia, South East Asia and Africa. The Panel commends the Theme's management for this effort, a requirement of ILRI's global mandate. However, it is extremely important that these staff do not feel isolated, even if they are able to work and interact as virtual teams.

The Panel is of the view that to avoid isolation and improve productivity a critical mass of staff and scientific interaction with fellow researchers needs to be taken into account. These could be achieved if such staff are located within established CGIAR centers or other related national institutions in those regions. Good examples are the posting of Theme staff at ICRISAT (India) and ICARDA (Syria). In addition, efforts should be made, to ensure that such all Theme staff, including some senior NRS, attend meetings physically (such as the annual planning meetings) and the Theme Managers budget time to visit the research sites and interact with the staff there.

The Panel has also noted the absence of Theme staff in West Africa - a region that is too important to be ignored. The Panel commends the intention of ILRI management to post new staff in Mali and Nigeria as soon as replacements for those who departed early this year can be identified. However, appropriate location, critical mass and collegial interaction still will need to be taken into account.¹⁵

The majority of staff in the Theme are economists, appropriate given the mandate of the Theme. Nevertheless, the Panel is of the view that more efforts are needed to build broader skill sets for the Theme staff in place and others to come, so that they can better address evolving and dynamic institutional and change processes. Close working relationship with IFPRI-ISNAR is but one way of overcoming these limitations.

¹⁴ Example is the DANIDA – funded project titled “Competitive smallholder dairy systems in Uganda”.

¹⁵ ILRI management plans to build up West African activities in areas with strong links to its global themes. The implication of such an approach would include improving current livestock-specific links with CIRAD, CIRDES, and ITC as well as strengthening links with regional partners such as FARA and CORAF. In addition, efforts will be made to support larger regional initiatives that link with ILRI's global mandate including the SSA-CP, ALIVE and the new GEF- funded Animal Genetic Resources project.

The Panel has noted challenges faced by the Theme in terms of research input and emphasis. It is important that this Theme assess carefully what role it should play (active or catalytic), in given situations (e.g. policy analysis) and should avoid undertaking research in areas that can be addressed by other partners such as IFPRI and the NARS under the umbrella of the SROs and FARA in Africa, and the national research institutions of Asia and Latin America. The ILRI-IFPRI joint program on livestock markets is noted as a good example of a collaborative research arrangement. The Panel suggests that, in future, the Theme's focus should be on much broader livestock market issues of regional and global importance.

3.2.3 OP 3 – Animal Health and Food Safety for Trade

The rationale for this OP is found in the evolution of the livestock sector in developing countries. On one side, increasing urban populations wish to have access to good quality and safe animal products for their consumption; on the other side, on-going globalization offers many avenues for export.

However, the poor in developing countries may not benefit from these opportunities. Most developing countries cannot comply with national or international regulations governing trade in livestock products. Moreover, many countries, even developing ones, may use these regulations as non-tariff barriers to prohibit importation of animal products. In its new strategy, ILRI has attempts to address this issue. For these and other reasons, OP3 works on animal disease control schemes and the constraints that face the poor livestock owners in complying with international or national standards, both related to animal health and other safety and quality issues. For this purpose, "risk analysis from veterinary epidemiology is combined with analysis of the costs and benefits of different options and policies."

Activities planned for 2007-2009 include: analysis of health and food safety constraints to the production to consumption chain for smallholder beef production in Central America (with a large number of international, regional and national partners including CIAT, IICA, CFC); ICAR-ILRI collaborative research and capacity building program on the integrated epidemiological and economic implications of animal disease control in India; improving livestock market opportunities through animal health interventions (FARA, Alive); and analysis of the impact of institutional arrangements for delivery of small ruminant health services on income and market participation among poor in the WANA region.

Achievements and Assessment

ILRI has a long experience in epidemiology and economical analysis. The OP scientific team, composed of one epidemiologist, two animal science specialists and three agricultural economists, has an appropriate multidisciplinary approach. Moreover, many partners are involved in the on-going activities: CGIAR centers (such as CIAT); regional institutions (such as AU-IBAR, FARA, IICA and CAC); international organizations (FAO-PPLPI), and national institutions including in India, Guatemala, Honduras and Nicaragua.

Efficient disease control is based on a good knowledge of the epidemiology (particularly geographic distribution and prevalence) and the economic impact of the disease. The book "Investing in Animal Health to Alleviate Poverty" should only be used as a guideline as it gives a subjective picture of the 'opinion of the experts'. Cost-benefit studies are necessary to rank diseases in a priority list.

The results of ILRI's research in this field are particularly welcome especially as few institutions deal with it. The achievements of the OP in recent years have already helped alert policy makers and international organizations through several papers, communications and books; and have proved the necessity to continue and even increase this activity.¹⁶

The studies have also identified some "success stories" that may be reproduced. Among the factors identified for successful participation by developing countries in markets are: change is driven by the private sector, it concerns animal products not live animals, strong brand identities need to be developed, and there must be vertical integration.

The Panel is of the opinion that ILRI should continue to focus on the issues of food safety and the economic impact of animal diseases on market access by smallholders. Given its experience and credibility, ILRI could also develop new and innovative methodologies for animal disease economic impact assessment and cost-benefit analysis of control measures to be applied in developing countries.

3.3 Biotechnology to Secure Livestock Assets

The Biotechnology Theme mainly addresses two pathways out of poverty: securing assets and improving productivity. Specific applications of biotechnology include better understanding of the diversity and enhanced utilization of indigenous animal genetic resources, and reducing disease and environmental risks through developing new diagnostics and vaccines.

Research activities are organized in three operating projects; Improving disease control (OP1), Animal Genetic resources (OP2) and Delivery of genetic change (OP3).

As recommended by the first EPMR, the OPs are managed from Nairobi; this allows closer interaction and synergies between the scientists and improves research quality and productivity, but possibly risks alienating other parts of the globe. Activities in OP1 are mainly focused on *Theileria parva* responsible for East Coast Fever (ECF), which is relevant for East, Central and Southern Africa. Activities on characterizing livestock genetic diversity in OP2 were first focused on cattle in Africa but have been extended to cover a broader range of species in Africa and Asia. Research on the genetics of resistance to production-constraining diseases focuses on Trypanosomosis in Africa and helminthosis in small ruminants in Africa and Asia.

An overview of the disciplinary background of the IRS and NRS scientists active in this theme in 2006 is given in Table 3.4. Of the NRS scientists, five hold a PhD degree and three hold an MSc degree, whereas all IRS scientists hold a PhD degree except for the head of the animal unit. One-third of the IRS scientists and half of the research NRS work on OP1 and the others on OP2 and OP3 (50:50).

¹⁶ (i) Perry B., Nin Pratt K., Sones & Stevens 2005. An appropriate level of risk: balancing the need for safe livestock products with fair market access for the poor. PPLPI working paper No 23, FAO; (ii) Nin Pratt A, Bonnet P., Jabbar M.A., Ehui S. & de Haan C. 2005. Benefits and costs of compliance of sanitary regulations in livestock markets: the case of Rift Valley fever in the Somali region of Ethiopia. ILRI Nairobi Kenya. 70PP; (iii) Williams T.O., B. Spycher & I. Okike 2006. Improving livestock marketing and intra-regional trade in West Africa: determining appropriate economic incentives and policy framework. ILRI Nairobi Kenya, 122pp.

Table 3.4 Disciplinary background of Biotechnology Theme professional staff

Disciplinary background	IRS	NRS
Economics (environmental)	1	1
Molecular genetics/biology	4	2
Genetics (general, ecological)	3	
Animal health related science (vet., immunology, virology)	7	7
Animal Sciences and Biology	2	5
Animal technology	1	
Bioinformatics	1	
Laboratory technology		5
Total	19	20

3.3.1 OP1 - Improving disease control

OP1 deals with disease control through development of new vaccines, improvement of existing vaccines, and development of diagnostic tools. ILRI focuses on immunological evaluation of antigens, and laboratory and field testing of prototype vaccines. It links with public-sector partners who conduct large-scale genomic screening of pathogens and with private-sector partners in the development and delivery of vaccine products and diagnostics.

In 1999 the first EPMP Panel concluded that the slow pace of results and unrealistic timescales had led to a lack of credibility in the area of ILRI vaccine development (ECF and Trypanosomosis). To address this recommendation, a CCER was conducted in July 2000. The recommendations of this CCER, after careful consideration, resulted in the decision of ILRI to stop its research on a vaccine against trypanosomosis. Further, a new approach was adopted for the development of ECF vaccine with a time-bound go/no-go procedure.

The strategy that is implemented today is based on four principles:

1. Focus on development of the East Coast fever vaccine;
2. Build a generic antigen identification and formulation platform for prototype vaccines and diagnostics that can be applied in a wider range of pathogens and parasites;
3. Identify the constraints to the use of existing but sub-optimally functioning animal health technologies in order to improve these technologies and enhancing their relevance for a wide range of users;
4. Work with partners (including private sector) that can develop and produce the new technology.

The ECF vaccine is the flagship of OP1 as it is carried out by a consortium including advanced research institutes (ARI) in UK, Belgium, Canada and US, and the private sector. ECF (due to *Theileria parva*) vaccine research is used as a model for other *Theileria* infections and for antigen delivery systems.¹⁷

While the development and evaluation of ECF vaccine will continue, other diseases are also under research, the include: Contagious Bovine Pleuropneumonia (CBPP) funded by the Wellcome Trust and led by the Moredun Institute (UK); African swine fever (funded by Spain)

¹⁷ ARI involved in ECF consortium are TIGR (US), Ludwig Cancer Institute (Belgium), University of Oxford (UK), University of Victoria (Canada), The Kenya Department of Veterinary Services and KARI.

in collaboration with CISA-INIA; Tick vaccines (funded by USDA) in collaboration with the Washington State University, and Bovine tuberculosis project (funded by Wellcome Trust) led by VLA (UK).

The research in this OP is expected to result in increased use of new vaccines or diagnostics leading to reduced mortality and improved livestock productivity.

Achievements

Specific achievement to date include: candidate antigens have been identified that can be used for the development of ECF vaccine; ILRI has contributed to the genome sequence of the *Theileria Parva* which was published in *Science* in July 2005; new diagnostic kits for tick-borne diseases have been developed and are now produced by a private company, and a CGIAR Science Award for Promising Young Scientist was won by Simon Graham for research on development of a system for screening molecules that may protect against ECF. During 2003-2005, 71 papers have been published (author or co-author) in peer-reviewed scientific journals. Some papers were published in journals with an ISI high impact factor (*Science* (2), *Trends in Parasitology* (3), and *Nucleic acid research* (1)).

Assessment

Following the recommendations of the CCER, ILRI has largely reduced its immunological research on Trypanosomosis, which is a major disease in large parts of Africa, South America and Asia with huge economic impacts on livestock holders and with an important zoonotic aspect. Host genetics of Trypanotolerance remains a significant area of research under OP2 of this Theme. In recent years, ILRI has focused on ECF for which there was a prospect of developing a vaccine.

The consortium that has been created for the ECF vaccine offers the opportunity to develop the vaccine and make it commercially available to stakeholders. However, the private sector has its own logic which is to make profits. The price that the livestock owners will have to pay for the vaccine may prohibit its use by the poor. ILRI has used the current ECF vaccine to study issues of cost and adoption by the poor.

ILRI should not get involved in the development of CBPP vaccines with the same consortium as many African laboratories currently produce CBPP vaccine. The vaccine production in these laboratories supports activities on diagnostic and epidemiological surveys. There is a serious risk that these activities would disappear if a private company could produce an improved CBPP vaccine. For vaccines that are already produced in Africa by African laboratories and new vaccines that could be produced in Africa, ILRI should get involved in transfer of technology towards the African laboratories (such as through the African Union managed laboratory PANVAC in Ethiopia).

Noting that the BecA network will offer ILRI and its partners opportunities to study a range of diseases, *the Panel recommends that ILRI maintain a clear focus in vaccine research, and that before ILRI enters any new disease for developing a vaccine or diagnostic, it clearly define its role and that of its partners, and evaluate the viability of any new technology.* (Recommendation 3)

ILRI has maintained an involvement in research on improved control of Trypanotolerance. The Panel views this as important because if ILRI is no longer involved in basic research on

Trypanosomosis, either by carrying it out or by leading it, no breakthrough in the development of a vaccine against Trypanosomosis can be expected as very few ARI are interested and NARS lack the resources for basic research in this field.

3.3.2 OP2 and OP3 - Animal Genetic Resources and Delivery of Genetic Change

As OP3 has only recently started, it is discussed jointly with OP2.

Livestock species in many areas of the developing world have evolved critical adaptive traits such as disease resistance. There is increasing demand for improved understanding and conservation of genetic diversity in indigenous livestock. Molecular markers are combined with phenotypic data to characterize priority livestock species globally. In collaboration with partners from NARS, this information as well as information on livestock systems and markets, is used to guide *in situ* conservation programs. Capacity building is integrated into all projects.

Activities on characterization and conservation of livestock genetic resources, and on development of disease resistant livestock have been combined into one OP. Neutral markers play an important role in characterization (OP2). For characterization related to adaptation, disease resistance is taken as the focus. Utilization has recently become a separate OP (OP3).

Livestock genetics research (OP2 and OP3) at ILRI addresses two pathways out of poverty: better characterization of farm animal genetic resources (FAnGR) to support conservation through utilization of FAnGR; and improving productivity of livestock through identification and promotion of optimal existing livestock breeds, and development of more adapted and improved breeds through breeding. The research is leading towards an adaptable and properly characterized pool of breeds of priority species able to respond to the current and future needs of livestock production systems worldwide.

Other research focuses on the genetics of resistance to two major production-constraining diseases, Trypanosomosis in Africa and helminthosis in small ruminants in Africa and Asia. Both are diseases where alternative control strategies through drugs, vaccines, or chemical or biological vector control are inadequate or unavailable.

Achievements

In terms of characterizing animal genetic resources, the OPs have done much, including: the mapping of genetic diversity for domestic livestock species (cattle populations in Africa, small ruminants in Africa and Asia, Chicken in Asia and yak in Asia); the Domestic Animal Genetic Resources Information System (DAGRIS) database has been compiled and is now freely accessible on the Internet; electronic training resources on FAnGR have been developed and disseminated, partners in Africa and Asia have been trained by a joint ILRI– Swedish Agricultural University team, and trainees are using this tool in the development of policies and breeding programs; and molecular tools have been developed by ILRI used to characterize genetic diversity in indigenous livestock species (particular cattle) in Africa.

In terms of understanding the genetic basis of disease, the OPs have achieved the following: functional genomic studies of Trypanotolerance have identified mechanisms, pathways and candidate polymorphisms for trypanotolerance for use in cattle breeding; QTL markers associated with helminthosis in mice have been identified; and Trypanotolerance functional

genomics research has resulted in an unexpected but significant finding that cholesterol metabolism is closely associated with survival of mice following a tryps challenge.

In 2003-2005, 81 papers were published in peer reviewed journals, of which 23 concerned sheep, 16 cattle and six goats.¹⁸ Of these papers, 38 related to Africa, 10 to Asia, three to South America, and 30 were on general issues.

Assessment

ILRI scientists have been part of an expert panel to formulate DAD-IS, the FAO database for farm animal genetic resources (FAnGR). The system at ILRI (DAGRIS) covers technical information – phenotypic (including physical descriptions and performance) and genetic characteristics based on individual publications from conventional and grey literature, distribution, threat status. As opposed to DAD-IS, in which data is entered on the basis of all breeds in a country (treating breeds in each country as different from those in the other countries), DAGRIS is based on the “breed” as a unit of entry, thus allowing recognition that a breed can be found in multiple countries. DAGRIS has been shown to be a valuable tool for researchers that want to work on a particular breed. The two databases are clearly complementary yet serve different purposes. The activities at ILRI complement the activities of FAO in the field of FAnGR. The Panel suggests that ILRI investigate how (in technical as well as legal terms) the DAGRIS expertise and information can be used to assist countries to provide information for the country-driven DAD-IS system.

ILRI has established a very strong position in the field of characterization of genetic resources. The paper on “African Pastoralism: Genetic Imprints of Origins and Migration” published in Science in 2002 was the first continent-wide study of genetic diversity of cattle in Africa. Based on seven years of research, it represents a landmark in work to characterize animal genetic resources. In subsequent years the molecular characterization has been extended to sheep, water buffalo, Bactrian camel, Yak, chicken and cattle populations in Asia.

The scientists working on genomics for animal health (vaccine and diagnostics research) and genetics (diversity and gene discovery) used to work separately, which led to duplication of equipment, such as sequencing machines, even after ILCA and ILRAD activities were moved to one location. It was decided to bring these teams together in one Theme to exploit synergies and to rationalize infrastructure – for example, a single unit for genotyping sequencing and oligo synthesis which also provides service to other groups, including non-ILRI researchers.

While a number of senior scientists have left ILRI in recent years, retaining core competency has been managed by recruiting a scientist through a joint appointment arrangement with University of Liverpool (which ends in 2008), and by appointing a full-time expert in bioinformatics. A state-of-the art bioinformatics facility is included in the BecA initiative.

To support and accelerate the detection of genes involved in resistance against diseases, which requires long-term experiments in cattle and sheep, ILRI also conducts research in mice to increase the understanding of the molecular basis of Trypanotolerance and more recently helminthosis. The murine model has also been used to evaluate marker assisted introgression schemes. Several of these results have been reported in publications in peer reviewed journals.¹⁹

¹⁸ The peer reviewed papers (2003-2005) were distributed: sheep (23), cattle (16), mice (10), goat (6), chicken (3), water buffalo (2), pigs (2), yak (1) while 18 were not related to a particular species.

¹⁹ Ten papers on mice published in peer-reviewed journals (2003-2005).

The award of a major grant by the Wellcome trust testifies to the quality of this work and significantly contributes to ILRI's international visibility.

The Panel commends researchers for being at the forefront of science on the genetics of Trypanotolerance and the unraveling of the history of domestication in cattle. Productivity measured in terms of publications in scientific journals is good and some papers have even been published in high impact journals (Science and PNAS). The papers deal with a wide range of species and a significant number are related to populations in Asia. The quality of the work has attracted world class scientific collaborators from numerous outside institutions to ILRI. However, research on "delivery of genetic change" has been seriously constrained by the delay in refilling the co-ordinator position for OP3; this is managed through ILRI contacts with a number of key genomics research institutions. As the field of Animal Genomics and Bioinformatics research is undergoing rapid changes, ILRI should carefully define its unique role in this area. The core group of ILRI scientists in this area has declined in recent years and it has proven difficult to attract promising experienced scientist to staff appointments at ILRI. Furthermore, no project specific funds are available for further QTL mapping work in cattle or sheep. So despite the major outputs, staffing constraints puts the quality and progress in research in this Theme at risk.

ILRI has played an important role in raising awareness, capacity development and active participation in research on characterization of genetic resources but until now little attention has been paid to utilization. ILRI realizes this and has formulated OP3 which concentrates on utilization of genetic resources. The training module that has been developed in collaboration with the Swedish University (part of OP3) has proven an excellent way to involve NARS in collecting information on current breeding programs. Activities in this area should be continued and intensified.

The SC report, "Conservation of Livestock and Fish Genetic Resources," emphasizes the importance of characterization, conservation and utilization of FAnGR and underlines that these activities are clearly related. The report recommends that CGIAR should be a strong contributor to strategic research on characterization of FAnGR, their conservation *in situ* and *ex situ*, and their use in genetic improvement. Given the needs and opportunities in developing regions, the Panel suggests that the SC and ILRI implement the recommendations in this joint report.

Genomics tools (tools for mapping and functional analysis) are developing rapidly which is important for the identification of genes affecting important traits in farm animals. The BecA facilities provide access to bioinformatics and facilities for functional genetics that represent new opportunities for gene discovery research. ILRI has made major investments in populations with information on Trypanosomosis (cattle) and helminthosis (sheep) which are a very valuable resource for future research. ILRI should seek funding to continue analysis of these populations. Access to livestock populations with known pedigree structure and phenotypic information is an important resource for gene discovery, and barriers to it might become the limiting factor in the near future. The Panel suggests that ILRI explore opportunities to collect, in collaboration with NARS, high quality phenotypic data in different regions for research on gene discovery as well as to test already detected genes in different populations and environmental conditions.

In situ conservation is sustainable only if those FAnGR provide the best livelihood option for farmers. ILRI recognizes this and it is another reason for the separate OP3. To ensure the best use

of available capacity, the Panel suggests close collaboration and exchange of information between scientists working in OP2 and OP3.

Finally, as chicken and eggs are relatively cheap sources of animal protein for the poor, and are often the first step on the “livestock ladder” out of poverty, the Panel suggests that ILRI increase its emphasis on pigs and poultry beyond genetic characterization.

3.4 People, Livestock and the Environment

This is a very broad theme. It deals with integrated natural resources management (INRM) and environmental and human issues in relation with livestock through five OPs: Sustaining water productivity (Addis Ababa); Sustaining lands and livelihoods (Nairobi); Human health and nutrition (Nairobi); Mitigating feed scarcity (Hyderabad), and Forage diversity²⁰ (Addis Ababa). ²¹ It links, for example, with IWMI and the Challenge program on Water and Food for the Sustaining Water productivity project, and CIAT, ICARDA and SLP for the Forage Diversity project. Notwithstanding the geographical dispersal of Theme staff, relations between the operating projects and scientists are seen to be adequate and, according to the theme director, scientists meet frequently. Each OP is discussed separately due to their disparate nature. The disciplinary background of the professional staff is shown in Table 3.5.

Table 3.5 Disciplinary background of People, Livestock and Environment Theme professional staff

Disciplinary background	IRS	NRS
Economics	3	1
Natural resource management	7	3
Crop science	4	2
Animal health related science	2	
Animal nutrition	1	
GIS		1
Wildlife conservation		2
Epidemiology and biostatistics		1
Chemistry		1
Total	17	11

Innovation systems research as conducted in the Targeting Opportunities and Enabling Innovation Theme shapes research in this Theme, which provides a clear indication of the cross-cutting support role played by the former Enabling Innovations Theme.

3.4.1 OP 1: Sustaining Water Productivity

OP 1 aims at identifying opportunities to improve food security and reduce poverty through policies that promote equitable, productive and sustainable use of water and livestock. It also intends to promote household and community innovations that improve both the livelihoods of the livestock keepers and the productivity of their water resources, while also encouraging

²⁰ Under this last OP, Theme 5 has a specific responsibility within the CGIAR system which is the Forage Gene bank.

²¹ The locations associated to each OP reflect the home base of OP leaders but not necessarily where the OP works.

researchers, development professionals and policy-makers to include livestock production practices in strategies to improve water productivity.

Achievements

An important output comes from an investment study on livestock-water options in SSA.²² Other case studies are conducted in the Nile River basin, Uganda and Ethiopia (Sudan has been delayed) within the Challenge Program on Water and Food. The main results of OP1 are: a methodological framework to assess the use of water in production systems and to enhance its productivity; publication of the framework and making it available to NARS; studying a water harvesting scheme (with NGOs); and increasing the interest of donors and decision makers on the relation between livestock and water.

Assessment

The very small team (1 full-time IRS and 2 NRS), which expects to be supplemented by a joint ILRI/IWMI scientist appointment, conducts part of its work in a narrow collaboration with Theme 1 including GIS work and economic decision making. The OP seems promising, especially as its activities only started recently and it has already produced interesting outputs.

In order to create greater credibility for the approach while also making it more amenable to independent assessment of the scientific outputs, the Panel suggests that even though the OP is new, the team ensures that publications are prepared for journals, reports, and manuals.

3.4.2 OP 2: Sustaining Lands and Livelihoods

Most ILRI projects involve crop-livestock systems; this OP is the only one specifically focused on extensive pastoral systems. It aims at improving ecosystem resilience through the provision of livestock-based options for enhanced land-use management for the poor in marginal lands, and therefore like OP1 it concerns INRM. Its main activities are the identification and better understanding of the management and policy options for sustainable land use in marginal lands used pastorally (especially in relation to land-use conflict), as well as supporting target institutions and individuals in developing and implementing better strategies.

Achievements

In Kenya and Tanzania, the OP studies responses of the Masai livestock owners to climatic, demographic and land use changes, as well as the relations between livestock and wildlife. In Niger, a scientist is working on the interaction of plant diversity and livestock production, and on conflict issues at the local level while also making minor inputs to the Desert Margins Program (DPM). Overall, partners are mainly ICRISAT and ICARDA, and FAO's LEAD.

Current plans include potential collaboration with ICRISAT and ICARDA in their development of a GEF-funded project in Asia; and developing the new initiative OASIS (a new systemwide program approved by the Alliance for Future Harvest centers). In West Africa, OP2 will be involved in a GEF-funded project in the pastoral area for the NRM component.

Assessment

In the last 3 years, the scientists of OP 3 have published more than 20 papers in well-known international journals on vast variety of topics. However, the Panel is of the opinion that many of these studies do not relate clearly to pastoralism, land use policy and poverty alleviation.

²² See <http://ilrinet.ilri.cgiar.org/InvestingFeb2006.pdf>

Translation and validation of methods from one local environment into more general methodologies applicable elsewhere do not appear advanced.

As pastoralists are an ancient and continuing component of the livestock sector, and as they are increasingly marginalized by agricultural development, *the Panel recommends that People, Livestock and the Environment Theme research related to transhumant livestock keeping be oriented to pro-pastoral policies globally and that knowledge developed to date be published in a global context as a priority. (Recommendation 4)*

3.4.3 OP 3 - Livestock Keeping and Human Health Impacts

There is an assumed overall positive interaction between livestock and human health, as high value nutrients from animal products contribute to the health conditions of vulnerable groups (reduction of child mortality by consumption of milk and milk products, eggs and meat, and improvement of maternal health and mitigation of disease consequences). On the other hand, animals have historically been associated with major health challenges to humans through zoonotic diseases. OP3 is therefore designed to deal with both positive and negative interactions between livestock owners and their animals. The goal of the OP sounds ambitious aiming as it does at improving human nutritional status, especially of vulnerable populations such as mothers, children and communities affected by HIV or malaria, but ILRI has defined a small niche for its work.

Achievements

To date the activities include reviewing the existing literature, and conducting a case study on zoonoses in Ethiopia in collaboration with the Swiss Tropical Institute in the form of a nutrition and socio-economic survey of livestock keeping and child nutrition in the Debre Zeit area, some studies in Kenya aimed at reducing the risk of *Cysticercosis*, as well as a risk-assessment study in collaboration with Cornell University.

Assessment

The team involved in this OP is very small and is insufficient to “play a facilitative and catalytic role in promoting appropriate research and policy through partnerships and leveraging external expertise in the health sector,” which is the stated approach. However, the increasing threat of animal disease transmission to humans opens new prospects for the OP, but according to the OP leader, at least two full-time equivalent scientists and three post-docs are required to meet the targets.

To date, it is not possible to evaluate outputs as this OP has only started recently and funding is yet to be secured for staff and projects.

As a new program far from the issues of animal research, this OP raises the question of whether ILRI is the best institution to lead or conduct this type of research. A definitive and positive answer to this question is not evident to the Panel, which considers that if ILRI considers this OP a key project in its strategy, it would have allocated more human resources and financial support to it, at least during this initial period.

Under the circumstances, the Panel suggests ILRI should revise its strategy and provide adequate means to the OP at least in the initial steps so that it can gain visibility with donors.

3.4.4 OP 4 – Mitigating Feed Scarcity

The OP aims to define means for improved feeding and productivity by optimizing resource use in intensive crop-livestock systems in SSA and South Asia; within this approach, is the implication of further intensification of feed production and use. Specifically the OP seeks to generate information on exploitable genetic variations in crop residue fodder traits in rice, maize, pearl millet and pigeon pea to produce dual purpose cultivars, to apply the same concept of improved food-feed-characteristics in sweet potato silage for pig feed, and to understand trade-offs and better feeding strategies. Projects in this OP are relatively well-funded and executed.

The pearl millet project (US\$ 478,134) is led by ICRISAT and aims to improve stover quality suited to commercial hybrid seed production and isolating stover quality QTLs based on in vitro and in vivo testing. Improved parental lines are to be released to public and private seed companies. In the case of maize, ILRI is the lead center for the program, which may be one reason that the project (Euro 609,197) focuses on three countries in East Africa. Its specific activities examine the influence of livestock ownership on choice of maize cultivars, identification of superior dual-purpose maize cultivars for these agro-ecological zones, and identifying other opportunities for similar work. Another SLP project (US\$ 505,000), housed in the Targeting and Innovations Theme but linked to this OP, deals with innovation processes and systems for the adoption of forage and fodder technologies. In Nigeria, an IITA-led project (US\$ 250,000) focuses on trade-offs between the use of crop residues in terms of soil fertility and feed. In South Asia, an IWMI-led project includes ILRI (Euro 95,329) on wastewater irrigation for dairy forage and development of a GIS database of peri-urban agriculture. A second ICRISAT-led project (US\$ 40,750) is building a consortium for coping with drought and mitigation strategies in the semi-arid tropics through capacity building and knowledge sharing. Also in Asia, a visiting scientist from Korea contributes to a project (US\$ 80,000) for improved use of sweet potato as a food-feed-crop for pigs.

Assessment

The OP is well focused considering the disparate projects seeking to cover a huge range of environments. In the case of the Indian wastewater work, the nutritional research supports an understanding of the decision-making criteria of forage and fodder purchasers, which potentially adds to practical policy advice and refined nutritional and other research. The somewhat open-ended nature of such work has proved to be its strength and may be seen as closely related to the former Innovations Theme. These benefits are in addition to any that may be associated with health and other aspects that are within the IWMI purview of the project.

The potential impact of developing nutritional parameters for feed-food crop breeding work, and the observed outcomes where these have been taken up by commercial breeders and farmers, are worthy of special mention. The value-added by involving both crop Centers and ILRI further reinforces the benefits of co-location of center staff (in this case the ICRISAT-ILRI connection in Hyderabad stands out). A past success indicates the power of this type of CGIAR partnership; sorghum in at least parts of India is now routinely selected for fodder quality as well as grain by the national system and commercial varieties are produced by the private sector, all may be traced to recognition of the need to view the sorghum from the perspective of poor farmers, and is an outcome of which ILRI is rightly proud.

The Panel notes that this OP demonstrates the benefit of sustained effort and clear goals that are readily understood by donors. The Panel suggests that the OP be strengthened by limiting future

projects to specific cases where a product such as a dual-purpose crop or improved nutritional understanding is an output in conjunction with systems approaches that generate understanding of applications and constraints. The combination of technical and innovations research offers efficiencies that innovations research projects without a specific technical orientation, such as feed production, lack.

3.4.5 OP 5 – Forage Diversity

The objectives of this OP are to enhance utilization of forage species by collecting, preserving and making seeds of germplasm available, and by improving the information available about the forages for better choice by users for forage seed production. Some of these activities are aligned with the Systemwide Program on Genetic Resources. It is fully in agreement with the CGIAR priorities to conserve and characterize under-utilized plant genetic resources for the benefit of the poor.

Achievements

The forage gene bank is the core activity of this OP for both conservation and distribution of germplasm. A small pilot project in Ethiopia supported this focus through a participatory activity to understand farmers' preferences in the use of forages based on their decision-making and adoption practices. The Forage Selection Tool that was developed in partnership with CIAT and CSIRO is an important step, and the project is developing a website to make passport data, characterization information and images accessible to users (estimated to be ready by the end of 2006).²³ This activity should be continued and enhanced.

A CCER on 'Forage Diversity Management and Use' was conducted in 2005. The Panel is pleased to note the CCER was useful and that most of the recommendations have been accepted and are under implementation. The OP links with OP4 (Mitigating Feed Scarcity) for coordination of improved feed utilization using food-feed crops, particularly crop residues, and forages. It also links with CIAT (for the gene bank), IPMS (for the pilot project) and the SLP (for coordination of feeds utilization).

The Forage Gene Bank achieves its goal of the secure conservation of a forage collection with more than 18,000 accessions from more than 1,000 species, making it one of the largest collections of grasses, legumes and fodder tree species in the world. This collection is stored at the Addis Ababa site with seed multiplication at different sites (needed for the climatic adaptation of a number of species) including Debre Zeit, Soddo and Zwai (for the species with short-lived seeds or those that rarely produce seeds). Core budget (2003-2006) and the Global public goods (GPG2) initiative (starting in 2007) provide an adequate investment in OP5.

The OP also conducts limited research activities on phenotypic variation and diversity in terms of nutritional traits in order to identify the "best bets" for further agronomic evaluation and utilization. Field testing is restricted to food-feed crops, specifically some model species (Cowpea, Pigeon Pea) in collaboration with OP4 (Mitigating Food Scarcity).

OP5 also provides training to national partners in laboratory techniques (MSc and PhD). But due to logistical reasons, the candidates come mainly from Kenya and Ethiopia. The OP has contributed with IPGRI to the development of a manual and e-learning on 'Handling Seeds in Genebanks'. Training is also given to NARS, NGOs and farmers.

²³ www.tropicalforages.info

Assessment

The facilities in Addis are at the expected level for such an important resource and activities, but the green house does not appear adequate. The team is small and a critical mass of scientists may not be in place in terms of the OP's large range of activities: the three scientists in Addis Ababa (including the head of the OP) and one technician in Debre Zeit are motivated and efficient, but they cannot do everything. Even if many partners are sought (see below), this OP should be strengthened in order to fulfill its mission.

The Panel notes that this OP5 is governed by GPG2 and the Systemwide Genetic Resources Program (SGRP) as a resource for research and development. To develop a virtual forage diversity global system in collaboration with other Centers implies a higher profile and a different reporting structure than a livestock oriented OP.

The Panel endorses the recommendations of the CCER for more efficient management of the germplasm collection through improved databases and a computer based management system with bar coding. This requires that staffing remain at least at current levels. The Panel also suggest that more work should be conducted in conjunction with other projects to gather information on the adoption processes of users and to assess the impact of new forages *in situ*.

In view of the imminent new capacity for plant biosciences in BecA, *the Panel recommends that ILRI maximize use of the facility for the forage genebank activities while also increasing research collaborations, particularly with the CGIAR Centers, that enhance the use of the germplasm. (Recommendation 5)*

3.4.6 Overall Comment on Theme: People, Livestock and the Environment

With such a broad approach to a vast field, this Theme must strengthen its teams to present greater visibility to donors and other stakeholders. In order achieve critical mass in scientific teams, the number of OPs should be reduced by merging those with common or similar goals: for example, OP1 and OP2 could merge to create a project dedicated to INRM and possibly OP4 and OP5 could be better integrated from ILRI's perspective. However, the Panel suggests that such decisions should only follow careful examination of their impact on the genebank and successes in OP1. Overall the Panel believed the Theme contains some gems that can be missed by the OPs' diversity of projects. Those with technical elements combined with social science research seem the most likely to generate the systems information that ILRI seeks.

The Panel views the People, Livestock and the Environment Theme as broad and uneven. To remedy this, *the Panel recommends that OP2 be focused on pastoralists and INRM, and a refocused OP3 be transferred to the Markets Theme. (Recommendation 6)*

3.5 Unallocated Projects

ILRI manages two large projects outside its Theme structure (IPMS and BecA), an approach that allows new cross-sectoral or large initiatives to be developed. As presently managed, these can potentially weaken the Center's Theme structure and add to management complexity. At this stage of their development, the Panel finds that the research aspects of these projects should be managed within the Themes. In addition to management efficiencies, this approach offers the advantage of focusing the project on ILRI's agreed strategy and encouraging a research orientation in all projects.

3.5.1 Biosciences East Africa

Biosciences East Africa (BecA) is a member of NEPAD's continent-wide network of centers of excellence. The BecA network will consist of a Hub and Secretariat, Regional Nodes and other participating laboratories and organizations, and will mobilize biosciences for Africa's development.

A business plan for BecA was finalized in April 2005.²⁴ Design of the Hub facilities, which involves the refurbishment of current ILRI facilities, and the environmental impact assessment have been completed. In September 2006, the Canada International Development Agency (CIDA) agreed to a CDN\$25M (US\$21.5M) investment for the implementation of the planned construction of the hub facilities, the establishment of research nodes, and the implementation of research and capacity building activities.

Relationships to ILRI

The BecA Hub refers to the facilities and services to which BecA members and BecA participants gain access and use and includes the shared research platform to which CIDA has contributed substantial funding. The facilities will be located on ILRI's Nairobi campus. ILRI will host the secretariat for the BecA network, provide administrative support, and serve as the legal persona of BecA. For its support and administrative services, ILRI will receive an annual management fee. ILRI's use of BecA facilities for its own scientific research is expensed in ILRI's own budget. The organizational chart describing the ILRI-BecA project management arrangements is given in Annex 8. Details have been documented in signed agreements.²⁵ For information about the budget see the Annex 8 Table 1: BecA Implementation Phase Forecast.

BecA will be guided by a Steering Committee, which is intended to reflect the regional nature and broad community of BecA stakeholders and will consist of up to fifteen voting members. The Steering Committee is responsible for coordinating the cooperative efforts of the members of the BecA Network, and encouraging and guiding the conduct of activities at the BecA Hub, secretariat and regional nodes. The Steering Committee selects and appoints the network director, who provides leadership to all components of the BecA network and is responsible for the day-to-day management of the secretariat. The BecA secretariat is responsible for network coordination of joint venture research activities, the institutions hosting nodes are responsible for node activities, and ILRI is responsible for the development and operation of the Hub facilities.

As referenced above, ILRI will provide support services to the BecA secretariat, including recruitment of staff, procurement of goods and services, and preparation of assessments and reports for contributors and donors. Funds designated for infrastructure development and operations at the BecA Hub will be administered by ILRI and reported on to the Steering Committee. ILRI, on behalf of BecA, has signed contribution arrangements with CIDA and is legal responsible for reporting to CIDA.

²⁴ Business plan available at: www.bioscienceafrica.org.

²⁵ This concerns: "Establishment agreement amongst members of a network to advance biosciences eastern and central Africa (BecA)", "BecA regional node hosting agreement", "BecA ILRI Hub and Secretariat hosting agreement", "BecA contribution Agreement", and "BecA project agreement".

Benefits to ILRI

Realizing up-to-date facilities: The laboratories at ILRI were established in 1978 and there has been no real investment since then. ILRI management recognized the need to invest in its facilities and the additional need to enter into a partnership to realize this. This development of BecA is in line with the report of a CGIAR task force on genomics which recommended the development of regional genomics platforms.²⁶ From BecA funds, US\$7.7M will be used for designing and upgrading the Hub facilities and US\$3.1M will be invested in equipment. ILRI will contribute US\$3.8M of its financial reserves to the facilities upgrade. Through these investments, ILRI will get access to up-to-date facilities for genomics and bioinformatics.²⁷

Creating a platform for bioscience research: ICRISAT and IITA have a presence on the ILRI campus in Nairobi and make use of ILRI's genomics facilities. ICRISAT and IITA together with other partners from eastern and central Africa will occupy the plant section of the Hub. Discussions with CIP and CIAT to move some of their bioscience people to ILRI's Nairobi campus have started. The up-to-date facilities available at the Hub will bring biosciences research on animals, plants and microbes closer together. There are clear financial and scientific benefits in doing this and the Panel compliments ILRI for making it possible.

To foster the application of biosciences in the region, the BecA Network will support the establishment of research nodes in other countries.²⁸ The research nodes provide ILRI and other CGIAR centers with excellent opportunities to interact with research organizations in the region. Three other NEPAD centers of excellence are planned for Africa. Until other centers are realized, ILRI could serve in the interim as the biosciences Hub for Africa. ILRI can also use the facilities for its own research related to Asia and South America.

The BecA network will have first call on up to 50 percent of the increased capacity represented by the HUB. This would accommodate 80 scientists, students and technical staff associated with BecA projects per year. The total number of scientists, students and technical staff using the Hub is expected to increase from 175 in 2006 to 350 by 2010.

Increasing research capacity at ILRI: BecA develops capacity in the biosciences among African scientists through fellowships, and educational and training activities.²⁹ It is expected that it will annually attract visiting scientists and PhD students to ILRI and significantly increase its research activities. In addition to CIDA, other funding agencies have committed themselves to fund fellowships for scientists, for example, the sorghum improvement consortium and the Swedish government).

Risks to ILRI

The costs of refurbishing existing laboratory facilities are budgeted at US\$11.2M. Two issues arise with respect to financial risks to ILRI: Is ILRI responsible for cost overruns? And, what are the downstream financial consequences to ILRI as legal owner of the facilities in the event the projected business plan fails or falls substantially short of projections?

²⁶ Report of CGIAR Genomics Taskforce "Enhancing the Delivery of Genomics Research Outcomes."

²⁷ The estimated breakdown of the Hub project (total US\$11.2 million): shared platform facilities (49%), animal sciences facilities (26%), and plant sciences facilities (25%).

²⁸ BecA funding includes US\$1.0 million for research support and node development and US\$2.1 million for NEPAD regional network activities (2006-2009).

²⁹ BecA funding includes US\$2.4 million for building and strengthening of research capacity (2006-2009).

Research in the Biotechnology theme especially is expected to benefit from the upgrading of the facilities at the Nairobi campus. The research plans for the biotechnology theme of ILRI as presented in the MTP and for the BecA network overlap but are not the same. It is important that ILRI safeguards its own research agenda.

ILRI will employ three staff to manage the additional work load (Platform Research Manager, Capacity Building Officer and Project Site Manager), and four key technicians to support visiting scientists in using the biosciences equipment. This should prevent ILRI scientists from spending additional time on managerial tasks. It is important to monitor whether that potential problem is avoided.

The goal of the BecA network is to support eastern and central African countries to develop and apply bioscience research expertise to produce technologies that help poor farmers secure their assets, improve their productivity and income, and increase their market opportunities. The significant investment that results in one of ILRI's four themes might be interpreted as a possible change in ILRI's research emphasis and could also be seen as an increased emphasis on the region rather than on ILRI's global mandate. It is important to communicate ILRI's intent in a transparent and balanced manner to minimize these potential consequences.

Assessment

BecA offers benefits as well as risks to ILRI. The Panel stresses the need for ILRI to develop a strategy to deal with the financial risk as well as the potential impact on its image. The Panel also suggests that ILRI carefully monitor the usage and operating costs of the Hub facilities.

The objective of BecA is to create a benefit to the region. This implies that it is critical that the chain from discovery to delivery is well understood. It increases the importance of involving partners in this chain in the design of research projects. For ILRI projects connected with the facilities, the major impacts are anticipated to be in the improved utilization of indigenous genetic resources and vaccine development. The Panel stresses the importance of ILRI identifying the pathway for and partners involved in the delivery of improved livestock genetics to poor livestock keepers. The delivery of improved genetics to livestock keepers needs to be better understood. The BecA network will face similar challenges and may wish to wish to share experiences with ILRI.

In recent years, ILRI has reduced its efforts on vaccine development. The new facilities offer opportunities to work on a broader range of diseases. The Panel has suggested earlier (see Biotechnology Theme) that it should be careful not to spread its research activities over too many diseases.

The facility enhances capacity for research beyond the BecA mandate. ILRI can use the facilities to help achieve its global mandate. The Panel suggests that ILRI selects a number of research topics and research partners that are relevant for other parts of Africa and/or for Asia.

The field (and possible applications) of biosciences is rapidly developing. It is very important that the BecA Steering Committee and ILRI are current with developments in the international field and the consequences for BecA. In addition to the BecA scientific advisory committee, a committee of international scientists could be a great help in the development of the general strategy for BecA.

BecA will increase requirements to train (MSc and PhD level) in the area of biosciences. ILRI recognizes the need to link to countries outside of Africa for research and training. The Panel advises ILRI to establish longer-term collaborations with international universities to ensure adequate training opportunities. In that respect, it is useful to look at funding opportunities in Western countries that support training of people from developing countries.

3.5.2 IPMS

‘Improving Productivity and Market Success of Ethiopian Farmers’ (IPMS) is presented as a “common research-for-development platform involving farmers, livestock producers, the Government of Ethiopia and other centers supported by CGIAR [that] facilitates the testing and application of innovation systems that use global public goods generated by ILRI and its CGIAR partners to enable smallholder farmers/livestock producers to expand their access to and success in markets.” As such it contributes to the three Themes—Targeting and Innovations, Marketing, and People, Livestock and Environments—and to capacity strengthening in the Ethiopian ARD. Specific objectives include: introducing “an innovation system in the ARD” by developing and testing a knowledge system that enables technical adoption, fosters institutional change to encourage a market orientation, introduces small-scale finance, and disseminates the results as a means to expand successes nationally.

ILRI has been manager of this large (CAD\$19.5M), five-year multi-site program since 2004 on behalf of the Ethiopian ARD and CIDA, including its development aspects. While including the program in its budgets, it is curiously outside the project list in the MTP, possibly because it is managed from the office of the DDG as a reflection of the cross-cutting nature of the project and its non-research components. The rationale for ILRI accepting the responsibility to manage what is ostensibly many development activities is that ILRI can learn of innovation processes as the project is implemented.³⁰ The Panel questions whether it is necessary to accept the risks of project management to gain this knowledge, and suggests that direct involvement in research in the same or comparable projects would offer similar research opportunities.

Currently, the project is studying processes of behavioral change across social, marketing, policy and technical fields to elicit lessons to influence development policy, which seems to be the main expected research impact. It purports to involve ICRAF, ICRISAT, CIAT, IWMI, and World Fish, although this is in fact patchy. The Panel received conflicting opinions as to whether publications will result from the project, and suggests that this be clarified by Theme Leaders, including publication outputs from IPMS activities being included in their planning targets.

As the Panel looked at the project, it asked whether the project adds to ILRI’s portfolio. It is certainly a major contributor to ILRI’s budget, although much of it may not relate to actual research activities and may represent a disproportionate management cost to ILRI for the entire project. ILRI risks being sucked into non-research activities if a subcontractor fails, and of its image as a research organization being compromised among its clients. Through management of the project, ILRI finds its relations with the Ethiopian government complicated by a conflict

³⁰ ILRI’s own perspective is that it is ‘a test case for documenting how the CGIAR research contributes to rural development’. Of its three components, ILRI notes that ‘Knowledge Management’ ‘is largely development’ with research restricted to ‘better ways to share information’, while that of ‘Developing Innovation Capacity’ contains ‘research and capacity building’ and that of ‘Market Development’ includes the testing of proposed interventions. From ‘Research in the IPMS project’ supplied by ILRI to the EPMR.

between regional and national agricultural research. Nevertheless, the pioneering of new development research methodologies and contributing to improved research impact are major advances for which ILRI deserves credit and from which lessons can be learned for future innovative research.

Given the risks to ILRI of being perceived as conducting development activities, *the Panel recommends that the IPMS project be managed, budgeted and reported in two parts with research allocated to respective Themes and project management done by the DDG's office, and that ILRI decline management roles in future development projects. (Recommendation 8)*

3.6 Concluding Remarks on Themes

With each of the research themes and projects discussed separately, the Panel concludes this chapter by summarizing conclusions that are relevant across ILRI's Themes and projects. It is clear that ILRI has made changes in the structure of its research program to reflect its strategic vision, which was adopted in 2002. It adopted a Theme-based structure, which subsequently evolved to reflect its experiences with the structure. The Panel commends ILRI for the fact that it is eager to learn from its experiences and is willing to modify its program and structure in order to achieve its mission.

In a number of themes, the Panel questioned whether ILRI was always consistent in finding areas where it has a clear comparative advantage. ILRI recognizes the need for *ex post* impact assessments both to show accountability and to draw lessons for future endeavors. These *ex post* impact assessments can also help ILRI gain a clearer picture of the research areas in which it has or continues to have a comparative advantage. The Panel suggests that ILRI regularly conduct SWOT analyses to ensure the congruence of its research activities with its comparative advantage. Such an analysis should start at Theme level and move up to center level. Maintaining a well-defined sense of ILRI's comparative advantage provides it with important information for planning its research activities as well as its staff recruitment.

A number of ILRI research staff are posted in other developing regions of the world. The Panel commends the contributions of these activities and staff to ILRI's creating a global presence as part of ILRI's global mandate. However, it is extremely important that these staff operate at full capacity, which requires a critical mass of resources in a strategic location. Virtual meetings are a component of intellectual collegiality but not sufficient by themselves. ILRI needs to evaluate its current experiences to enhance the impact of a greater global presence in the future.

The current number of research projects is large and many of the projects are relatively small. The Kenyan Smallholder Dairy Project, IPMS and the recent BecA initiative are three examples of large research initiatives that have functioned or are expected to function as flagships for ILRI's research or its approach to partnerships and collaborations. All of ILRI's research themes would benefit from having at least one large project in collaboration with other organizations that would serve a similar flagship function. Following ILRI's success in facilitating the creation of a large regional initiative (BecA), *the Panel recommends that ILRI look at how it can generate adequately resourced, high impact initiatives for each Theme. (Recommendation 7)*

ILRI's management structure results in research staff shared across themes. This is particularly true for the Markets Theme. Within Themes, the level of staff sharing across projects is even greater. The management structure and the staff sharing arrangements seem to be working at

present. However, their impact on actual performance will need to be monitored in order to gauge the limitations as well as the benefits. One goal of this structure is to assure that ILRI has the diversity of scientists and disciplines it needs to meet its mandate; currently, economists form a large proportion (33%) of ILRI research staff, whereas animal sciences and animal health account for 27%, biology for 18 and plant sciences for 10. While the Panel supports the need for a disciplinary mix, it believes that ILRI should carefully monitor the skills it needs and assure itself that it has the diversity and depth required. The Panel suggests that ILRI carefully assess shared staff time and expertise among Themes and OPs to ensure that ILRI maintains the right mix of expertise and makes best use of it.

Despite significant achievements with other species, a lot of time and resources have been spent on dairy cattle and small ruminants compared to time and resources spent on other species of importance in poverty alleviation. The Panel suggests that ILRI carefully consider an increased emphasis on pigs and poultry, not only for the sake of market diversification, but also to accommodate different farming systems and different regions.

4 CROSS-CUTTING ISSUES

4.1 Science quality

It is always difficult to assess scientific quality in qualitative or even quantitative terms; neither provides a precise measure of quality but both provide important insights into productivity, rigor and results. The task of assessing quality is even more difficult in a research institution like ILRI, in which the work is multi-disciplinary and research projects may engage many actors. Recognizing these challenges, an assessment of the quality of ILRI's science has been conducted using both qualitative and quantitative assessments. The process is also important as monitoring feedback to management and research staff; while also serving to inform donors of the likelihood that research will be conducted according to international standards and produce the projected scientific outputs and intended impacts on poverty, food security and environmental sustainability.

The Panel evaluated the scientific quality of the institute by looking at four main contributors to overall quality:

1. quality of research staff;
2. quality of processes;
3. quality of the research facilities and services;
4. quality of research outputs: (publications, other research outputs, international visibility, relevance of products).

4.1.1 *Quality of Research Staff*

The Panel analyzed the biographical information of ILRI's research staff to assess academic credentials, principal assignments within Themes and operating projects, and turn over. The Panel asked the 78 IRS on staff in May 2006 to provide biographical information in a standard format, including research merits for a period of five years irrespective of their date of employment. Biographical information was also collected for the 52 research NRS on the research staff in May 2006. The results of the analysis are given below.

- Of the 78 IRS, 29 (19%) began their employment before 1994 (when ILRI was formed), 24 (30%) joined during the period 2000-2003, and 25 (31%) joined since 2004. Overall, this demonstrates a regular inflow of new scientists into ILRI. Within each theme, the rates differ. In the Biotechnology Theme, for instance, the percentage of staff joining since 2004 is 16%; for the Targeting Opportunities Theme the percentage is 57%.
- Of the 25 IRS employed since 2000, 21 hold a PhD degree.
- Of the 52 research NRS currently employed by ILRI, 20 have joined ILRI since 2000. Of those research NRS that joined ILRI before 2000, 13 hold an MSc degree and 4 hold a PhD degree. Of the Research NRS that joined ILRI since 2000, eight hold an MSc degree and nine hold a PhD degree (eight awarded by European universities).

The level of academic achievement within ILRI is consistently high, and the rate of inflow of new scientists is positive. The Panel was particularly impressed with the academic achievement evident among the Research NRS hired in the past six years over which time PhDs have tripled in number.

An analysis of publications showed that ILRI IRS staff authored or co-authored an average of 1.9 publications in peer-reviewed journals per year during the last 5 years irrespective of their

date of employment with ILRI. The number of peer-reviewed publications per year was 2.4 for Targeting Opportunities (n=14) and for Biotechnology (n=19), 1.5 for People Livestock and the Environment (n=17), and 1.0 for Innovation (n=7) and for Markets (n=16).

Differences in publication rates between themes seemed to reflect differences in publication strategies and in the degree of seniority of particular staff. The overall publication rate compares well with other CGIAR centers and seems average or slightly above average when compared to ARIs. However, the Panel notes that 13 IRS did not publish any articles in a peer-reviewed journal in the last five years, compared to 22 IRS who published more than three peer-reviewed papers per year and three who published more than 5 papers per year.

Although the number of publications in peer-reviewed scientific journals may not be a good measure of impact, their frequency of publication is important for building ILRI's influence, for peer recognition, and for attracting partners and funding. Peer recognition can also be gauged by the level of staff with editorial responsibilities, either as members of editorial boards or as regular reviewers, which in ILRI's case involves 30% of IRS.

The Panel notes that more than half of IRS (58%) have supervised students (on average 1.3 students per year). In assuming this task at this level, a large proportion of the staff makes an important contribution to capacity strengthening through mentoring, and ILRI benefits from feed-back, relationship building, and the flow of ideas to the Center.

4.1.2 Program Management and Review

ILRI has created a Science Advisory Panel comprised of internationally respected scientists. This establishment of the advisory Panel is an important indicator of ILRI's efforts to assure the quality of its research. The Panel also functions as a neutral but low risk mechanism for research staff to seek informal, outside evaluation of its work and is a positive manifestation of ILRI's desire to renew its intellectual capital, open itself to constructive criticism, and position its work and thinking in a forward looking direction. The Science Advisory Panel is designed to be an adjunct resource to management and functions effectively in its role. The Panel commends ILRI for creating a Panel of this nature and believes other Centers could learn from it.

ILRI commissioned ten Commissioned External Reviews (CCERs) between the 1st and 2nd EPMRs. A CCER on Partnerships was refocused as a study and is ongoing – the study is discussed in the partnership section. Of the nine completed CCERs, four dealt with research; one was an external review of the SLP jointly organized by ILRI and TAC, the predecessor of the SC; and four dealt either with research support, capacity strengthening or management.

CCERs can be an important part of the Centers self-assessment process; a tool that the Board can use for its oversight of scientific and management matters, both to obtain validation about past performance in specific areas of Center operations and to gain strategic advice for future direction.

ILRI itself considers the CCERs an essential research management tool which project and team leaders use to assess quality and evaluate and redesign research. All the CCERs, except the one on Partnerships, were conducted by teams of three or more external experts. The terms of reference were generally clear and mostly focused on relevant and strategic issues. In some recent CCERs, a member of the eventual panel has been involved in formulating the CCER's terms of

reference. This has had the benefit of using panel expertise to refine the focus and objectives of the CCER before work begins.

The Panel looked at the CCER reports and the responses by ILRI and concluded that the recommendations are taken seriously. The Program Committee of the board has a responsibility to provide input into the form and Panel membership of CCERs as well as receive and comment on the CCER reports and the staff response to them. On reviewing how CCERs are both planned and commissioned, the Panel considers that the board, although active in discussing the reports from CCERs may be more passive than is desirable at both the beginning and in follow-up to the process. The Panel commends ILRI for its effective use of CCERs and concludes that they have assisted ILRI management in making important strategic decisions.

ILRI places considerable effort on strengthening the links between strategy, planning and research implementation at all levels. It has redesigned its annual planning meeting by engaging staff in debates about key issues in research, and including a marketplace where research and development partners meet. The annual planning meeting has been moved from October to March to link it more closely with the medium-term planning cycle. ILRI has also implemented a more thorough planning cycle that brings together research, financial and staff requirements. Although there have been improvements to research planning, the Panel feels that there is room for improvement in reporting scientific achievements and documenting the reasons for changes to priorities in the MTP.

As noted in the section in this report on HR, ILRI understands how important it is to invest in professional development. As ILRI address its staff development needs, the Panel suggests there could be more attention paid to strengthening staff capacity in supervision of graduates.

4.1.3 *Quality of Facilities and Services*

In reviewing facilities and services, the Panel concentrated on those issues with particular importance for research quality and productivity. In addition to looking at communications and library resources, the Panel looked closely at technology overall, and notes the anticipated positive impact of BecA on research facilities and quality.

The development of the BecA Hub in Nairobi implies that ILRI upgrades its laboratory and office facilities. This provides ILRI and partners in the BecA network with an up-to-date infrastructure to conduct genomics research, a critical requirement for sustaining the quality and relevance of its research in biotechnology. The BecA Hub also provides excellent facilities for capacity strengthening of scientific and support staff from NARS.

The quality of ILRI's communication strategy and material is excellent, and it was no surprise to the Panel that ILRI has won several awards in this area. ILRI values the ability of its communications strategy to support the dissemination and perception of its work among many stakeholders. It has developed guidelines for ILRI publications that provide clarity and support to research staff as they develop material for publication.

The traditional library functions at ILRI have been subsumed within the broader mandates of Information Centers at both the Nairobi and Addis Ababa campuses. For the research staff, the underlying value of the Information Center is to provide easy and adequate access to publications, reference materials and a wide-range of scientific and professional journals, with

much of the material available online. The Information Centers participate in a range of CGIAR Systemwide programs that consolidate technical information needs and provide cost-effective access to subscriptions and other online services. In addition, ILRI collaborates with individual Centers to achieve comparable benefits in making information resources of various kinds available to the research staff. The Information Center in Addis Ababa plays an important role in capacity strengthening by its easy access to students and others. The Panel commends the openness and accessibility in Addis Ababa and encourages similar developments in Nairobi.

For ILRI as for all research institutions, research and, increasingly, capacity strengthening relies on high-speed internet access. All internet connections out of Kenya and from most countries in Africa are limited to satellite links. Currently ILRI is working on kilobits connectivity while institutes in the North are connected at gigabytes connectivity at low cost. The Panel concluded that ILRI has a seriously deficient capacity to use the internet in support of its research function.

Some of the resources required by ILRI scientists working on GIS, genomics and bioinformatics are now available on the fast Advanced Research Network (ARN). Direct access to these high-speed networks is not presently possible from East Africa. ILRI has commissioned a CCER on IT which is expected to take place in the remaining months of 2006. This will review the existing capacity for internet connectivity and recommend changes and improvement. The Panel believes that facility development associated with BecA provides a strong impetus and rationale for moving the technology issues forward at ILRI, and anticipates substantial improvements as a result. The Panel suggests that ILRI ensure that the CCER is completed quickly in order to be able to implement changes as early as possible in 2007.

In a related area of research support, ILRI and ICRAF have created a common Research Management Group that will enable both Centers to have access to research support at a higher level than before and with greater efficiency. This responds to a need expressed by ILRI's scientists for increased support on up to date methods of statistical analysis in areas including genomics, spatial statistics, meta-analysis and integration of qualitative and quantitative methods. This development of this unit and the alignment are discussed in the partnership section of the report. The Panel anticipates an increase in the demand for high-level statistical support. The Panel suggests ILRI to carefully monitor the demand for statistical support by their staff to ensure that the unit is able to meet the needs of ILRI research staff.

4.1.4 Research Outputs

ILRI scientists have produced (as author or co-author) 368 papers in peer-reviewed journals during 2003-2005.³¹ The distribution of these papers over years and Themes is given in Table #1. The average productivity per full-time equivalent (fte) is calculated by dividing the number of papers by the number of fte present in 2006.³² The number of scientific papers showed a significant decline from 2003 to 2005. It is not clear to what extent this decline is due to the re-orientation of the Institute or to an increased demand on the time of researchers. The statistics on productivity in Table 4.1 do not take into account the number of research NRS neither the number of MSc or PhD students active in the different Themes. This might also account for the

³¹ In this number, papers are counted only once, irrespective of the number of authors from ILRI. In the productivity figure given in 4.1.1, all publications were counted per author and a paper with multiple authors from ILRI was included in the number for each of the authors.

³² Information on number of fte per theme per year was not available to the panel.

differences between Themes. The Panel suggests that ILRI implements a system that allows closer monitoring of its research publications and their scientific quality.

Publishing productivity is highest in Biotechnology Theme and People Livestock Environment Theme and is lowest in the Themes Targeting and Innovation. These differences are in line with the differences generally found between biological and social scientists. However, the Panel encourages scientists in Themes Targeting and Innovation to increase their publishing productivity for reason given earlier, and scientists in some OPs of the People Livestock and Environment Theme to focus their publications on livestock-related research.

CGIAR performance measurement data shows 2.1 journal articles per ILRI scientific staff in 2003 which is the highest among CGIAR Centers (an average of 0.8 journal articles). The CGIAR performance measurement data shows 0.8 journal articles for ILRI scientists in 2005 which is surprisingly low compared to the 2003 figure and the trends in Table 4.1. The Panel found no explanation for this discrepancy.

Table 4.1 Peer Reviewed Journal Publications by Theme

Theme	2003	2004	2005	Total	fte^a IRS	pub/fte.yr
Targeting	16	14	13	43	13.1	1.1
Innovation	3	5	1	9	8.4	0.4
Markets	15	16	12	43	9.6	1.5
Biotechnology	67	45	39	151	19.1	2.6
PLE	38	35	30	103	13.0	2.6
Total	147	121	97	349	63.2	1.9

^a fte IRS: full time equivalent input of IRS into Themes based on September 2006 overview

Papers were published in 171 different journals. In five journals more than 10 papers were published in 2003-2005, and in 14 journals between five and 10 papers were published.³³ Most papers appeared in journals published in Europe or the USA. Some of the papers were published in very high-impact journals such as Science (2) and PNAS. The quality of the journals in which papers in the Biotechnology Theme are published stands out. The Panel concludes that journals are generally well chosen.

Between 2003-2005, 11% of the papers in peer-reviewed journals were authored solely by ILRI scientists; 60% were co-authored with NARS scientists; and 53% were co-authored with ARI scientists.³⁴ The first author on the papers was 36% from ILRI, 37% from ARI, 26% from NARS and 2% from others. The frequency with which ILRI is a co-author is an indication of the level and frequency of ILRI's collaborations with partners in the South and North.

Other evidence of scientific outputs the Panel wanted to note includes:

- 157 book chapters published by ILRI scientists from 2000-2005.
- From 2000 to 2005, 38 ILRI graduates completed their MSc training and 54 ILRI graduates completed their PhD training.
- Domestic Animal Genetic Resources Information System (DAGRIS) database.

³³ Ethiopian Veterinary Journal (n=18), Veterinary Parasitology (n=13), Livestock Production Science (n=13), Field Crops Research (n=12), Agricultural Systems (n=11).

³⁴ The total of the percentages is larger than 100% because papers have multiple authors.

- Electronic training resource on FAnGR developed by a joint ILRI – Swedish Agricultural University team.
- Over 1500 accessions in Forage Diversity gene bank tested for seed quality.
- Re-launched website to share information on crop-livestock systems globally.

4.1.5 Conclusions

The Panel concluded that the level of academic achievement is consistently high. The academic qualifications of the research NRS joining ILRI have improved significantly in recent years. The rate of publication is uneven but generally good. The Panels suggest that management carefully evaluates those IRS involved in research who have not published papers in scientific journals in recent years. Analysis of the authors on the peer reviewed paper showed that ILRI staff typically publish jointly which demonstrates clearly that ILRI scientists actively interact with partners from both developed and developing countries.

ILRI uses good program management and review practices and it has implemented a novel way to involve staff and stakeholders in its planning activities. The Panel is pleased with the practices used. Procedures can be improved by implementing a system that allows closer monitoring of its research publications and the scientific quality of Themes and research staff.

The quality of the facilities and services to support research generally meet the standards needed for ILRI's research, and some are soon to improve markedly. In addition, and in the interests of continuing to improve the quality of its research output, *the Panel recommends that ILRI immediately and systematically invest in increasing its Internet capacity for research purposes. (Recommendation 9)*

The Panel concluded that ILRI maintains a high scientific standard in its work overall and noted the opportunities for improvement.

4.2 Impact Assessment

Research projects are aimed at outputs and outcomes that impact on institutions, target population and other stakeholders. Impact can be assessed *ex ante* (i.e. prior to intervention) or *ex post* (i.e. an ample time after intervention).

Along with the change to a systems-oriented research structure, ILRI assumed an *ex ante* impact orientation through its Themes of Targeting Opportunities and Enabling Innovation. ILRI also shifted its *ex post* work more toward monitoring outcomes through 'outcome mapping'.³⁵ Monitoring of outcomes that may indicate the plausibility of longer term impacts is used at ILRI as a mechanism to get feed-back into on-going projects.

ILRI has traditionally undertaken also *ex post* studies and since 1999 has completed some major *ex post* impact studies, including: dual-purpose cowpea impact assessment in West-Africa; food-feed maize impact assessment; impact of graduate fellowship program; role of broadbed-maker plough in the Ethiopian farming systems; *ex post* economic impact assessment of planted forages in West Africa; and *ex post* impact assessment of smallholder dairy systems in Kenya. ILRI has also published its *ex post* impact assessment work in refereed journals (nine between 2000-2004). The Panel considers that these studies are of good quality.

³⁵ ILRI has adopted this monitoring and evaluation tool originally developed by IDRC.

The importance of documenting actual impacts is apparently acknowledged at ILRI, but it appears that there has recently been limited appreciation by ILRI leadership of the demand for such studies and their importance to the institute. Management does not seem to endorse the continuous need for *ex post* impact assessment.

The Panel appreciates that the assessment of *ex post* impacts from systems research – including integrated natural resource management, policy and capacity enhancement—is challenging and there are no on-the shelf methods available. However, ILRI needs to be involved in developing suitable *ex post* impact assessment methods and it needs to document the evidence of its research having actual impact on the ground.

The Panel considers that the shorter term monitoring of outcomes from projects complement but do not substitute to *ex post* impact assessment. The latter is necessary for both accountability and to document what impacts actually occur. Despite time lag between the research and when its impacts can be evidenced among the ultimate beneficiaries, *ex post* impact is needed also for guiding new research directions. The results of *ex post* impact assessment can be used to guide decision making by various stakeholders, including donors, policy makers and research managers.

As a critical component of ILRI's systems approach, *the Panel recommends that ILRI management charge the research themes to conduct ex post impact studies on selected programs using methodologies developed by the new Innovation and Impact Unit, and using external inputs where needed. (Recommendation 10)*

4.3 Partnerships

4.3.1 Partnership Strategy

With an acute sense of the need to leverage both its resources and its relationships, ILRI focuses on partnerships as an important part of its strategy. Partnerships are particularly important with those who adopt ILRI's research and apply it for direct development goals. The change within ILRI to a systems approach in its research and the demand by donors and other stakeholders to have impact on the ground combine to increase ILRI's need to develop and use these partnerships in a strategic way.

Recognizing this, ILRI initiated a process to improve its approach to forming and using partnerships by commissioning a CCER in 2005. The consultant identified key issues and characteristics in ILRI's current management of these relationships. After this initial analysis the study focused more closely on internal processes. Three products are emerging:

- a more explicit framework for the partnership strategy;
- improved operationalization and management of partnerships;
- alignment of institutional structures and systems to support partnerships;

Among the conclusions from the initial analysis work, it was found that since operationalizing its new strategy, ILRI had pursued partnerships pro-actively and adapted its work to meet the demands required for successful partnerships, including providing incentives for research managers to engage partners wherever possible. The study revealed that one result of the strategy to date has been a large number of partners that do not always add value and may result

in high transaction costs. These are among the issues that the new partnership strategy will address. The work on partnerships underway is intended to help ILRI manage partnerships at three levels: political, strategic and project; the latter involving the day-to-day management of the collaborations. The strategy will also include monitoring of the efficiency and effectiveness of partnerships.

The Panel considers ILRI's efforts to develop a partnerships strategy and the Center's commitment to making it as effective as possible commendable for strengthening the Center's overall strategy.

4.3.2 *ILRI's Partnerships Outside the CGIAR*

It is evident from the Panel's discussions with ILRI researchers and partners and stakeholders in Asia and Africa as well as from reviewing recent MTPs that ILRI has an extensive set of partners, particularly in Africa, and elsewhere where it has a critical mass of researchers and projects. The nature and extent of its partnership with the NARS is reflected in the relatively high number of publications co-authored with NARS scientists.

In Africa, ILRI should enhance permanent links with the pan-African umbrella organization FARA through the sub-regional organizations (CORAF, ASARECA and SADC/FANR). In addition, ILRI should strengthen collaboration with the regional research centers like ITC and CIRDES.³⁶ In some cases, ILRI will continue to work with NARS such as KARI (Kenya), ISRA (Senegal), INREA (Mali). This suggestion should be read in conjunction with ILRI's ongoing need to be engaged in capacity strengthening – see later in this Chapter.

In Asia, ILRI has formed partnerships with a range of institutions to varying degrees. In China, following CGIAR practice, ILRI partners with CAAS, with which it has co-created the Beijing-based Livestock and Forage Genetic Resources laboratory. This provides ILRI with access that would not otherwise be possible. Having begun with CAAS and achieved this level of cooperation, it would not be productive to suggest other partnerships at this stage. In India, ILRI has partnered with the Indian Agricultural Research Council to some effect, but its partnership with the National Dairy Development Board has been less dynamic. The potential for deeper relationships in India may be realized with a larger ILRI presence in the country. For SE Asia, partners have been project-based, usually involving NARS such as PCARD, but partnerships have dissipated when projects ended. Recognizing the cost of maintaining relationships in Asia, ILRI has joined regional groupings such as APAARI and APHCA, although this is a low level means of maintaining contact and cannot be considered as active partnership. Partnerships in SE Asia may be expected to expand with increased ILRI activity in the region, probably building on existing partners of SLP projects and of CGIAR Centers when ILRI staff are co-located with them, as recommended by the Panel.

ILRI has a large number of partnerships with ARIs in the North which provide ILRI access to research facilities and expertise as well as funding. The large proportion (53%) of the papers in peer-reviewed journals is evidence of the productivity of these partnerships. One example that illustrates these partnerships is the long lasting collaboration ILRI has had with the University of Liverpool, involving a joint appointment of senior scientist, for joint research on Trypanotolerance in mice and cattle, a project currently funded by the Wellcome Trust. This

³⁶ ITC: International Trypanosomosis center in Gambia, CIRDES: Center international de Recherche-Développement sur l'élevage en zone subhumide.

partnership has recently expanded to include the Roslin Institute which provides access to gene expression analysis.

ILRI has also established partnerships with commercial partners in the area of vaccines and diagnostics. The optimization of a Trypanosome ELISA Test involves a partnership with a Swiss diagnostics company. Research on the development of ECF vaccine is being conducted as part of an international research consortium involving 11 organizations, including the private sector.

4.3.3 Collaboration within CGIAR

CGIAR Center Collaboration

A recent SC study showed that ILRI was the second most common CGIAR Center partner for its sister Centers. This high level of collaboration was also reflected in the responses received from the DGs of other CGIAR Centers, who were, overall, uniformly positive in their assessments. The following highlight some of ILRI's collaborative research with other CGIAR Centers:

- CIP, ICRISAT - animal feed related research.
- CIP - NRM including modeling; collaboration with CIP in SE Asia ceased at the time of the second phase of the CASREN project.
- IFPRI – livestock market opportunities including animal health control as it relates to health and contract farming; this collaboration involves joint appointments.
- ICRAF - integration of trees and shrubs into livestock systems; institutional innovation and smallholder incentives; livestock feeds (for ILRI-ICRAF alignment see later in this chapter).
- IITA (that houses an ILRI office) - crop-livestock systems and animal feeds, including dual-purpose cowpea research.
- IPGRI, ICARDA and FAO - joint research on policies for conserving farm animal genetic resources.
- CIAT - forages and forage genetic resources.
- IWMI – collaboration on livestock and water issues including a joint appointment.

In addition to these specific examples, the SLP has also enabled a significant amount of inter-Center collaboration in crop-livestock systems.

Sub-regional MTP for Eastern and Southern Africa

ILRI took on a task to facilitate an extensive process to create a sub-regional MTP that aims at bringing together the scope and variety of CGIAR Center work in eastern and southern Africa. The sub-regional MTP describes the structures, behavioral modes and areas of potential synergy in programs and platforms that are expected to enhance research collaboration involving all relevant regional partners, such as ASARECA. The BecA platform is of direct relevance for ILRI. As a matter of strategy and organizational culture, ILRI has systematically engaged with the Centers and others as partners throughout its work in Africa. The impact of this process on ILRI's MTP in terms of changes to ILRI's research projects or its allocation of resources was not yet evident. Therefore it is too early for the Panel to judge whether the sub-regional MTP will help uncover substantial new opportunities that would be relevant for ILRI's mandate. Some skepticism about the benefits of this process was expressed by persons consulted by the Panel outside ILRI. The Panel observed the high amount of time this process demanded of ILRI, including the ongoing requirements for planning and consultation during the subsequent iterations of the regional planning process. The Panel therefore is doubtful whether the

investment of time will be rewarded by substantial improvements to ILRI's work in the sub-region.

Systemwide Initiatives

Of the three well established Challenge Programs (CP), ILRI has been involved only in the non-crop focused one, the CP on Water and Food, in which it collaborated in three out of the CP's seven Projects. For the Sub-Saharan CP, currently at its inception phase, ILRI, together with IITA, provided the tools – statistical, data, process – that culminated in the mapping of key criteria for selecting three research Pilot Learning Sites.

In addition to convening the SLP, ILRI participates in a number of other systemwide programs. With the SWP on Participatory Research and Gender Analysis, ILRI works on mainstreaming GA and gender audits, and conducts institutional assessment of PR and GA at ILRI. The project involves a joint appointment. ILRI is an active member of the Urban Harvest SWP and referred to as a partner in specific activities in the MTPs of the Global Mountain Program, Central-Asia and Caucasus program and the Inland Valley Consortium in Sub-Saharan Africa.

4.3.4 Collaboration with FAO

ILRI's collaboration with FAO is based on a Letter of Agreement between the two institutions, which outlines areas of mutual interest. These collaborations with are of longstanding nature but can be enhanced. Ongoing collaboration includes:

- DAD-IS, the FAO database for domestic animal genetic resources, has involved ILRI experience with its DAGRIS database, which includes phenotype descriptions and performance, genetic data from conventional and grey literature, and distribution and threat status commentary. The cross-country utility of DAGRIS for researchers makes it a valued complement to the country-based DAD-IS.
- FAO uses the ILRI decision-support tool PRIMAS (Poverty Reduction Intervention Mapping in Agricultural Systems) and EXTRAPOLATE (*ex ante* tool for ranking policy alternatives).
- ILRI and FAO are jointly developing alternative scenarios of the livestock sector in the developing world under the Millennium Ecosystem Assessment using ILRI's livestock-poverty and system change projections.
- ILRI is sub-contracted by FAO to implement aspects of the Pro-poor Livestock Policy Initiative (PPLPI). From October 2006 ILRI is hosting the PPLPI Horn of Africa Hub at its Addis Ababa campus.
- ILRI and FAO participate in Avian Influenza discussions, to the extent it is within ILRI's mandate.
- ILRI actively participates in the FAO Livestock, Environment and Development (LEAD) project which operates as a virtual center.

Closer collaboration seems warranted and from experience may be best encouraged at project and Theme levels.

4.3.5 Host-country Relations

ILRI has established good working relationships with both Kenya and Ethiopia, the countries in which it has a significant physical presence. The host-country agreements with each conform to the standards that govern agreements with international organizations and provide levels of immunity and independence from various restraints that enable ILRI to pursue its work without concerns for unnecessary legal liability or comparable impediments. Host country ties are enhanced by the appointment of country representatives to the board who are both active and engaged and serve as effective ambassadors for ILRI within their respective governments and with individuals and organizations of value to the Center. ILRI's research agenda and priorities as well as its contributions to capacity building also consolidate its relationship with its host countries and with organizations based in those countries. In addition, the CGIAR Centers hosted by ILRI in Nairobi and Addis Ababa benefit from and contribute to the quality and tenor of ILRI's host-country relationships.

4.4 Capacity Strengthening

The capacity strengthening program (CaSt) of ILRI is designed to build and strengthen the scientific knowledge and technical capacity for NARS scientists and technicians in developing countries. Past ILRI CaSt activities were focused mainly on individual higher degree training for post-graduate students, but activities have now broadened to focus on institution strengthening. Current ILRI CaSt activities consist of three main categories, namely; degree training for graduate fellows, non-degree training for research fellows, student associates, technical associates, and attachment associates and group training for scientific and technical staff from the NARS of developing countries.

4.4.1 Graduate Training

The ILRI graduate training program is primarily intended for NARS employees undertaking MSc or PhD studies. Secondary targets are early career scientists of developed countries who wish to pursue a career in international livestock research. Graduate fellows are assigned an ILRI supervisor and stay for a period of three months to four years. All graduate fellows, irrespective of the source of their funding or length of stay at ILRI, are subject to the guidelines and conditions of ILRI's fellowship program.

ILRI's Training Policy Manual describes the procedures in place for supporting fellows while at ILRI.³⁷ This manual was produced in 1996 and the Panel urges that it be updated as soon as possible. In 2006, ILRI and ICRAF started a Graduate Fellows Induction Course to orient new fellows to research in the CGIAR, and to equip them with the basic skills required to conduct quality research for development in agriculture and natural resources management. This course, which attracted 37 graduate fellows from CGIAR centers (including 10 from ILRI), will be conducted twice a year.

During 2000 to 2005, 38 graduates completed their MSc training at ILRI, while 54 graduates completed their PhD training. Of the MSc graduates, 21% were female; of the PhD graduates, 24% were female. Ninety percent of the MSc graduates came from the two host countries, Kenya and Ethiopia.³⁸ Sixty three percent of the PhD graduates came from the two host countries,

³⁷ Training policy and procedures manual. ILRI, August 1996.

³⁸ Countries of origin of MSc graduates (number of brackets): Kenya (22), Ethiopia (12), Uganda (3), and Netherlands (1).

Kenya and Ethiopia, 22% came from other developing countries³⁹ and 15% came from developed countries.⁴⁰ The large proportion of graduates from the two host countries reflect the lower costs (travel and accommodation) of the local candidates and the greater awareness among Kenyan and Ethiopian universities and candidates of what ILRI has to offer. In the future ILRI will seek fellows from a broader geographic spread within Africa and Asia.

Most of the MSc students obtained their degree from universities in the two host countries. The picture, however, is very different for PhD students where the majority of the PhD degrees (66%) were awarded by universities⁴¹ in 10 countries in the North of which Wageningen University had the largest single contribution (10 PhDs).⁴² PhD degrees were awarded by eight universities in five developing countries of which the University of Nairobi had the largest contribution (nine PhDs).⁴³

To ensure that ILRI was well positioned in the landscape of capacity building organizations, ILRI commissioned a CCER on capacity strengthening in 2004. The results of this and the 2006 CGIAR Systemwide Evaluation of the Impact of Training in the CGIAR will be used by ILRI to redesign its CaSt under the management of a new unit manager.

ILRI believes that while the total number of graduates could be slightly increased, the major change should be increasing geographic representation and advancing the strategic goal of building relationships between NARS and ILRI. In order to realize this broader spread, ILRI will need to find additional funding for the fellowship programs. The CCER report contained a number of good suggestions on how to realize additional funding which ILRI should follow up after the arrival of the new CaSt unit manager in December 2006.⁴⁴

Ex-graduate fellows interviewed in 2001⁴⁵ expressed a high degree of satisfaction with the supervision and research environment provided by ILRI. The EPMR Panel interacted directly with the graduate fellows present at ILRI in May. The Fellows also expressed a high degree of satisfaction with the training environment offered by ILRI, and the Panel was impressed by their motivation.

ILRI does not currently require specific training for those supervising graduate fellows arguing that supervisors are engaged in research and not teaching. The Panel points out that good supervision of graduates also requires skills which may not come naturally to all researchers but which can be improved by training. The Panel suggests that ILRI explore opportunities to improve these skills. Experiences elsewhere demonstrate that such an investment is of benefit to both the graduate fellow and the supervisor.

³⁹ Countries of origin of PhD graduates: Kenya (24), Ethiopia(10), Uganda (3), Benin (2), Zambia (2), Cameroon (2) and one from Tanzania, China, and Sri Lanka.

⁴⁰ Countries of origin of PhD graduates: USA (2), France (2) and one from Germany, Netherlands, Sweden, and Switzerland.

⁴¹ Universities awarding more than 1 PhD degree (number in brackets): Wageningen University (10), University of Edinburgh (3), University of Gottingen (3), Brunel University (3), and Utrecht University (2).

⁴² Countries awarding more than 1 PhD degree: Netherlands (12), Scotland (5), England (4), Germany (4), France (3), and USA (2).

⁴³ Universities in developing countries than awarded PhD degree: University of Nairobi (9), Kenyatta University (4), Addis Ababa University (2), Alemaya University (1), Free State South Africa University (1), University of Lanzou (1), Pretoria University (1).

⁴⁴ Capacity Strengthening Unit (CaSt) Unit CCER. January 2005.

In 2001 ILRI conducted an impact study with a view to assessing the value of its post-graduate fellowship program for scientists from developing and developed countries.⁴⁵ The study used retention of ex-graduate fellows within the NARS as the principal indicator of impact. The authors of the report acknowledged that this is not a true indicator of impact but it is an indicator of capacity strengthening. A large proportion of the fellows (86%, n=50) were employed before the fellowship and remained employed six months after completion. ILRI can assist in the retention of ILRI alumni within NARS by maintaining collaborative research links, by ensuring the alumni are linked to ILRI's information systems and research facilities, and by periodic invitations to attend workshops and conferences. ILRI maintains contact with former graduate fellows by ensuring they are on the distribution list for 'ILRI e-news', are part of ILRI's publications distribution list and have access to the ILRI website. The Panel commends ILRI for these activities. The Panel suggests that ILRI implement an on-line mechanism to monitor the careers of former ILRI alumni as a resource for establishing partnerships.

The recent CCER pointed out that the training programs were not directly related to the needs of the NARS programs but rather based on ILRI research projects. ILRI does not have the resources for an independent training function and it has, therefore, been ILRI's policy to conduct CaSt activities within its research mandate. The Panel supports this policy which is in the interest of ILRI as well as of the graduate fellow who is seeking the best environment for his or her training.

4.4.2 Other CaSt Activities

A good example of ILRI's commitment to capacity building is its collaboration with the Swedish University of Agricultural Sciences to strengthen the skills of scientists teaching students in animal breeding and genetics at least up to MSc level. This three-week Training of Trainers courses was conducted for Eastern and Southern Africa, for Western and Central Africa, and for Southeast Asia. Since 2000, 94 scientists (16 of them women) from nearly 30 countries have participated in this course. The evaluation of this activity revealed that the linking of universities from the North to those of the South, with ILRI playing both a facilitating and catalytic role, was beneficial. As described under OP2/3 of the Biotechnology theme, this course also provided an excellent opportunity to establish relationships with scientists at NARS.

The Panel suggests that the experiences gained from this course are used to design similar courses in other areas where ILRI has a comparative advantage.

The poverty mapping project provides another good example of ILRI capacity strengthening. In this project, 22 researchers from NARS and 20 government employees of national services participated in the project which enabled them to adopt innovative methodologies to conduct poverty mapping in Kenya, Tanzania and Uganda.

The two Information Centers of ILRI have been used for training on information retrieval using software packages that facilitate access to a large number of scientific journals free of charge for NARS and universities. The Information Centers have also been the distribution point for hard copies and other information materials for NARS and other interested partners. The Information Center in Addis Ababa currently alerts individual scientists in NARS in 21 countries in SSA and Asia on new publications in their area of research through the Selective Dissemination Information Service.

⁴⁵ "Evaluating the impact of graduate fellowship program of ILRI", ILRI Impact Assessment Series 8, January 2002.

Achievements in other areas of CaSt are:

- ILRI is an active member of the virtual library project of CGIAR to which it has contributed its collection of 120,000 references.
- Collaboration in research is important for capacity strengthening. In 2003-2005, 60% of the papers in peer-reviewed journals were co-authored with NARS scientists; and 53% were co-authored with ARI scientists. This clear indication that ILRI uses joint research in capacity strengthening.
- Training courses were delivered by ILRI on a large number of subjects. From 1994 to 2004, 583 participants in 22 sessions received training in various topics, including dairy technology, forage seed production, milk hygiene and processing, and diagnosis of tick-borne diseases.
- ILRI website includes several products that can be downloaded, such as manuals and training course on animal genetic resources and CD-ROMs.

The comparative advantage of ILRI with respect to CaSt activities lies in ILRI's expertise and the value of its research projects and outcomes. Increasingly, ILRI orients its CaSt activities increasingly to 'changing institutions' by 'changing individuals', rather than the latter alone as has been the case in the past. In this way CaSt activities are embedded in most ILRI projects and thus increasingly shape the nature and the focus of livestock research and development agendas. The Panel supports this evolution which requires that ILRI engages in longer-term collaborative arrangements with NARS but reminds ILRI that 'changing individuals' is likely to remain more effective in some countries.

The BecA Hub provides excellent facilities for capacity strengthening for support staff from NARS in the area of biosciences. This will facilitate the use of more advanced bioscience technologies in NARS.

In the most recent MTP (2007-2009), CaSt activities are disconnected from research. Graduate fellows play an important role in capacity building as well as in ILRI's research program. The MTP, however, does not provide some information on the role of graduates in the different Themes. The Panel determined that post-graduates form a multifaceted input to CaSt by their multinational background, coming from a range of countries in both the South and the North – the next expected couple are from Finland – and supports an increase in post-doctoral graduates in its development of North-South relationships. Nevertheless, ILRI is less clear on how and for whom it plans to achieve that.

As part of ILRI's contribution to strengthening capacity, *the Panel recommends that ILRI make this activity explicit and measurable in research program design and report results for both training and follow up activities. (Recommendation 11)*

5 GOVERNANCE, MANAGEMENT AND FINANCE

5.1 Governance

5.1.1 *Overview and Assessment*

Members of the EPMR observed the board at its April 2006 meeting, interviewed a substantial cross section of board members, and reviewed board minutes, policies and the results of periodic self-assessments to form its conclusions and recommendations.

Overall, the ILRI board is effective by CGIAR standards, and has organized itself to govern well and provide guidance to the Center as it navigates a complex and challenging environment. The board meets at least twice a year and begins each of its meetings with a full day retreat. The retreat enables the board to explore larger issues that will influence ILRI's programs and operations as well as to master contextual information that facilitates the business portion of the board meeting. The nature of the discussions during the retreat—low key, informative, inquisitive—and the informal style of the event provide the full board with an opportunity to connect on a personal and social level. For newer members of the board, the retreats also provide a valuable orientation to the work of the board, and the strategy and program of the Center.

Board members appear to take their assignments seriously. Attendance at board meetings is high and board members provide substantive feedback on ways to improve the focus and effectiveness of their work through an annual self-assessment. Based on the meeting observed by the EPMR Panel, the quality of the board benefits from the interest and engagement of its individual members as well as the overall tenor of their work together—discussions are constructive and not overly circumspect; and no single voice dominates or expects to prevail. Board members are comfortable raising issues and questions, and staff seems to value the board's expertise and engagement. The chair's style encourages participation, which has the important effect of building a productive and a congenial board culture.

The board's relationship with the staff also shows evidence of being well balanced and respectful. The primary relationship is clearly between the DG and the board, but the interaction between the management team and the board reflects an organizational culture within ILRI that espouses teamwork, openness and collaboration. Responding to a recommendation in ILRI's first EPMR, the board has defined the boundaries between governance and management and carefully differentiates between its work and the work of the staff. The confidence and trust the board exhibits toward the staff do not appear to preclude the board's exercise of its responsibility to question performance and shape and evaluate strategy.

Although the EPMR Panel's overall assessment of the board and governance function is positive, the Panel identified the following as areas of board structure and practice that offer significant opportunities for the board to strengthen its role and performance.

- Improvements to the board's financial oversight and stewardship, including a more thorough orientation of new board members to financial issues and trends, the recruitment of specific expertise in financial management, and a heightened focus on audit functions.
- Improvements to the preparation and structure of board and committee meetings, including strengthening the role of the Board Secretary.
- Improvements to the annual performance appraisal of the DG.

- Board leadership succession planning.
- A multi-year recruitment strategy for new board members to bring critical expertise to the board as well as to reflect and advance ILRI's global mandate.

A number of these issues were identified by board members themselves in an assessment that was undertaken at the close of the April 2006 meeting, and the chair has recommended potential remedies and adjustments to board policy and practice. The board also endorsed a board development strategy designed to sustain the board's capacity to be both a forward-looking leadership body and a good steward of the Center.

5.1.2 Financial Oversight and Stewardship

While the credentials and professional profile of board members provide assurance that they will quickly grasp ILRI's mission, programs and strategies, grasping the complexity of ILRI's financial structure, the history and pattern of the CGIAR Centers' financing generally, or the trends that influence resource stability as well as resource mobilization cannot be taken for granted. The contextual and strategic dimension of ILRI's financial life is a critical component of both its management and governance, and needs to be mastered early in a board member's tenure in order for him or her to provide the level of stewardship and oversight that is increasingly expected within the CGIAR System.

The ILRI board has placed a priority on identifying a new board member with specific expertise in financial matters, a recruitment goal consistent with recommendations in the CGIAR Governance Stripe Review.⁴⁶ The addition of such a person might enhance the board's capacity to tap specific expertise on these matters, but it would not exempt the full board from bringing a confident grasp of ILRI's financial life to its work.

Although ILRI states that it provides new members with a half-day orientation to the Center and board service, the orientation does not provide a sufficiently comprehensive orientation to the Center's financial structure or assist the board to fulfill its strategic and stewardship role in this area. ILRI also encourages its newer members to participate in CGIAR training for boards, but these are often attended well after the first round of board meetings and provide only a general introduction to financial stewardship in Centers.

The best time to assist board members to develop confidence in interpreting the Center's financial data and trends as well as to share a common capacity to fulfill the board's fiduciary responsibilities is through a well constructed orientation to these matters organized by ILRI when members first join the board.

The Panel recommends that ILRI provide new members of the board with a thorough orientation to the financial issues and trends that shape ILRI's budget, strategy, and capacity as well as to the processes that support the board's responsibilities for financial stewardship and oversight. (Recommendation 12)

An important adjunct to the board's financial oversight responsibilities is the Finance and Audit Committee. The combination of two related, but very different, oversight functions in a single committee is increasingly being replaced on CGIAR Center boards with two separate committees.

⁴⁶ Report of The Stripe Review of Corporate Governance of CGIAR Centers, CGIAR Committee of Board Chairs and CGIAR Secretariat. March 2006.

The separation reflects the adoption of a practice common in corporate governance designed to reduce the potential for conflicts of interests between those on a board (or staff) who approve and oversee budgets and financial transactions, and those who scrutinize these activities for their integrity and compliance with existing policy directives and prevailing standards of practice.

The current structure of the Finance and Audit Committee, the extent of its terms of reference, and the infrequency of its meetings given its scope of work no longer provide management or the board with the level of oversight each requires. In spite of the relatively small size of the board and challenge of populating two committees rather than one, the Panel suggests the creation of a separate audit committee with a chair and a majority of its members drawn from outside the membership of the finance committee. Further, the Panel suggests that the Audit Committee and the Finance Committee meet by phone or electronically at least once between meetings of the board.

5.1.3 Board Meeting Preparation and Organization

Given the importance of a Center's board meetings, their relative infrequency, the time pressures experienced by everyone involved, including the staff, and the impact of meetings on the budget, the board's time together should be as effectively organized as possible.

In the board's assessment of its April 2006 meeting, board members identified a number of shortcomings:

- An imbalance in the time allocated for consideration and discussion of important matters versus interesting matters.
- Ambiguous framing of agenda items that left the board unclear about either the issues involved or the actions required of the board.
- Not enough time for committees (other than Program) to complete their work.

The Panel has focused on two specific actions that would strengthen the board's work and enable it to focus its time together more productively: more effective meeting planning and preparation, and modifications to the practices of the Program Committee.

More Effective Meeting Planning and Preparation

Boards begin their work with what is in front of them. The way an agenda is organized, the manner in which issues are framed and the clarity of the documents provided in advance contribute significantly to board effectiveness. During the board and committee meetings observed by the EPMR Panel, the board frequently struggled to decipher what action an agenda item called for—decision or advice, an update or substantive input—and to differentiate between important matters versus merely interesting, and budget its time accordingly.

This was particularly evident for two agenda items: the future of Theme 2, one of ILRI's five strategic areas, and the approval of outside investment counsel for the management of ILRI's substantial cash reserve. The first issue foundered in the Program Committee/board meeting; the second foundered in the Finance Committee. In both instances, the board was either given choices that made little sense, or could not clearly determine what they were being asked to approve or recommend. In the absence of a clear directive from the board, management subsequently proceeded to integrate Theme 2 into Theme 1, and was required to delay to a later board meeting the decision to retain investment counsel.

These examples offer compelling support for re-evaluating the role of the Board Secretary, which is currently a more passive function within ILRI than is useful to management or healthy for the board. Fortunately for ILRI's board, the Board Secretary is a member of the senior management team. This has the advantage of placing the assignment with a member of the staff who has both a nuanced grasp of organizational matters and a level of authority among his peers that assures that the staff preparation for meetings enables the board to work effectively. The latter is critical in insuring that board members have useful, crisply framed materials that not only enable them to be well informed but also allow them to focus their attention on the right issues in an efficient fashion.

The Panel recommends that ILRI management and the board chair redefine the responsibilities and scope of work of the Board Secretary and improve ILRI's practices with respect to meeting preparation. (Recommendation 13)

More Efficient Program Committee Practices

Like many Centers, ILRI convenes the Program Committee as a committee of the whole. This is commonly considered a useful strategy for engaging the full board in the core business of a Center, but becomes a less useful strategy when the Program Committee's work is completed and the full board convenes to "hear" its report. Current practice, which is not unique to ILRI, sustains the fiction that the committee is like other committees—a subset of the board, rather than what it is—the full board.

Consequently, as the committee reports to the board, the board has in effect the same meeting twice, putting inordinate pressure on the time other committees have for their work and the time the full board has for the balance of its agenda. The time problems are intensified by the irresistible temptation the current practice presents to re-open issues or re-visit committee recommendations when the board adjourns as a committee and re-convenes as the board to receive the committee's report.

If ILRI wishes to use its board meeting time more effectively and also continue to treat the Program Committee as a committee of the whole, current practice must be modified. A number of solutions present themselves, including clear ground rules on formal board action on committee recommendations that discourage returning to issues that achieved consensus, or the use of a consent agenda in which multiple recommendations arising from committee deliberations are presented in a single motion for formal board approval. Alternatively, the board could conflate the two meetings by adopting the parliamentary procedure of re-convening and adjourning the board's business meeting through the course of the Program Committee meeting to endorse and record decisions and recommendations as they are reached.

The EPMR Panel suggests some adjustment to the practice of the Program Committee to preserve the ability of all the board's committees to function effectively and to make more time available for the board's deliberative work.

5.1.4 The DG Evaluation

The annual evaluation of the DG is a critical part of effective governance and an important opportunity for the board, not only to provide good oversight, but also to provide constructive feedback to the DG. Neither goal is served by the board's current practice of placing the evaluation at the end of a long meeting (and usually the end of a long and compressed day) when

board members are tired and organizing themselves for their flights home. Board members may read over the necessary evaluation materials before the board meeting begins, but the current practice does not provide adequate time for reflection before the actual discussion begins nor does it carefully protect time within the agenda for the discussion itself. Under these circumstances, it is difficult for the evaluation to have the focus and depth needed to be useful either to the board or the DG.

The Panel suggests that the board review its current practice with respect to the annual evaluation of the DG's performance to assure itself that the content, format and, in particular, the placement of the evaluation provide the board and the DG with a sound process.

5.1.5 Leadership Succession of the Board

While ILRI has a vice chair, this position has not functioned as a deliberate part of leadership succession (the current vice chair's term expires before the current chair's term concludes), nor does the board have a position that functions as the equivalent of a chair-elect, or that provides a formal role for the immediate past chair. Center chairs have multiple leadership roles—on the Center's board and in the CGIAR System. It is a challenging assignment and takes time and ability. Although the board considers the potential of prospective board candidates to serve as chair and has recruited candidates with this role specifically in mind, there is a strong potential to be disappointed. Candidates may be unwilling to join the board when the invitation is attached to the obligation to become chair, or a designated successor may find himself or herself unable to assume the leadership role at the necessary moment. The lack of a structure that clearly identifies an orderly process for succession or that enables the board to cultivate more than one potential candidate for chair at a time is a missed opportunity to provide the board and the Center with continuity and sustained leadership within the board and the CGIAR System.

5.1.6 Board Composition and Diversity

With the authority in the bylaws to have a total of 15 members, the ILRI board has decided to maintain its size at 10 or 11 members, including its three ex officio members (the DG and two host country representatives). This reflects a desire to create a more nimble and tightly organized governing entity (and, although not the goal, has the incidental benefit of reducing the annual cost of governance). A smaller board places pressure on board composition. In addition to the three ex officio members, ILRI's board includes three CGIAR nominees. As a result more than half of ILRI's ten to 11 seats are "occupied" in some of fashion, leaving the board with limited discretion over its composition, and facing a challenge in creating a profile that reflects the Center's global mandate, brings critical expertise to the board's work, and maintains a careful balance of genders and disciplines as well as the representation it desires from developed and developing countries.

Compounding this challenge is the alignment of research support and corporate services with ICRAF, which calls for creating a joint board appointment. This puts further pressure on the discretion that ILRI's board has to shape its composition with ILRI's needs foremost in mind.

The CGIAR nominee process is collaborative but cumbersome, and to use those positions strategically to maintain the board's profile requires planning. The board currently ranks financial expertise and sophisticated experience with human resource management as priorities in its new members. More generally, in a highly competitive and dynamic research environment,

it needs to recruit for board members with the ability to place ILRI's research strategy in a forward looking global context.

Although the board is fortunate in the quality and commitment of its current members, it is not clear that the ILRI board systematically looks for or cultivates prospective board members far enough in advance of board vacancies or with a longer strategic focus in mind. In 2003, the board's regular retreat focused on governance issues and analyzed the board's recruitment needs as that time. This exercise needs to be completed again and updated frequently. Looking forward a few years in advance and recruiting assiduously are the only ways to make the most of seats controlled by the CGIAR nominee process and those within ILRI's discretion. More important, these are the only ways to guarantee that the board quality remains high.

The Panel recommends that the board increase the quality of its board recruitment process by developing a multi-year strategy for the recruitment of new board members, which supports the global mandate of ILRI and provides it with a board that is a sustained asset to the accomplishment of its work. (Recommendation 14)

5.2 Management

Management can be characterized as both structure and function. The EPMR Panel focused on the aspects of ILRI's management with the greatest potential to advance or hinder the Center going forward.

ILRI's organizational chart presents a conventional structure at the upper management levels, and a less conventional and more challenging management and operational structure below these levels. This reflects the cross-cutting, theme-based nature of its strategic framework, which demands that staff work across projects and periodically across themes. ILRI's overall management structure also reflects the strategic value placed on partnerships and collaborations, which are made easier to implement with a more flexible approach to staffing. ILRI's management complexity is amplified both by the distribution of its scientific and administrative staff and functions across what amounts to two headquarters (which are distant yet proximate) and by the geographic distribution typical of CGIAR Centers of staff engaged in research at locales distant from its headquarters.

Management as a function at ILRI requires that all staff with supervisory roles, but particularly those managing at the theme and operating project levels, move beyond mastery of conventional management skills linked to productivity, efficiency and excellence of results to proficiency in "soft" management skills, such as team building, communication, facilitation, collaboration and enterprise, particularly in mobilizing relationships and resources.

Given the scale and complexity of its management structure and function, the EPMR Panel observed a high degree of investment in the quality and effectiveness of management, and noted the value placed by the DG and the Management Committee on developing and maintaining a positive organizational culture.

5.2.1 Management Structure

Management Committee and ILRI Leadership

The principal planning and decision making body at the staff level is the management committee. It comprises the DG, the Deputy DG for Research, the Director of Human Resources, Finance and

Administration, the Director of Partnerships and Communications, a senior advisor to the DG, and the four theme directors. (A decision to recruit for a director-level head of the human resources function may alter the composition of the management committee.) The members of the management committee effectively backstop the DG, who must balance internal and external demands on his time.

Although this committee provides critical collective leadership around strategy, priority setting, annual planning, resource allocation and resource mobilization, the DG provides strong leadership within the Center in setting direction and shaping organizational culture. He has a powerful and persuasive vision for ILRI and a good grasp of the managerial and financial complexity of the Center as both a scientific enterprise and a complex operating entity.

At the adoption of the new strategic plan, which reorganized staff into a theme-based structure, the DG recruited a new leadership team using an open and competitive hiring process. The team that resulted at that time included three directors chosen from among ILRI staff and three directors selected from outside the Center. The process assured the DG of having a cadre of senior managers fully committed to implementation of the plan; the result balanced the injection of new perspectives and professional networks with the preservation of continuity and institutional memory.

The staff leaders who currently comprise the Management Committee appear to be a strongly collegial group, collaborative in their planning work, willing to be rigorous in assessing programmatic results and potential opportunities. The terms of reference for the committee, which were initially drafted in 2002 and emphasized shared decision making, mutual accountability, and personal responsibility, appear to continue to animate its work.

Programmatic Leadership and Management

ILRI's research agenda is substantially implemented through four strategic themes and within each theme three to five operating projects, each of which is lead by a project leader and implemented by a team. Because of the cross-cutting nature of the strategic themes, scientific staff is expected to work across themes and projects, although each staff is assigned a "home" within an operating project or theme where approximately 50 percent of his or her time is dedicated. The assignment of a home project or theme is designed to create a single place within which a staff member's time can be effectively and rationally allocated, and to give each staff member a single supervisor for the resolution of potential conflicts over time and prioritization, for annual performance evaluation, and for mapping professional development. (Organizational chart is attached as Annex 9.)

If this structure is difficult to grasp in theory, it is equally, if not more, difficult to achieve in practice. The benefits of the structure are evident—it provides a way to implement a strategic framework that was designed to be multi-disciplinary and global, and that engages partners and collaborators to achieve results; it minimizes the territoriality of more traditional structures that can contribute to disparities in influence and power within the management structure; and it demands high levels of internal collaboration and consensus throughout the Center. It also makes it more possible at a practical level to fill senior management and scientific appointments with joint and part-time appointments because such flexible approaches to attracting expertise and leadership can be accommodated and make sense.

The challenges are equally evident. Effective management within this structure does not come naturally. It is a break with more clearly hierarchical management systems and depends for effectiveness on a combination of organizational and temperamental adjustments that must be developed, and then nurtured to be sustained. ILRI's senior staff, with few exceptions, have not trained to be managers or business leaders yet find themselves at the center of a complex and nuanced structure that requires very particular skills to succeed. As the management function widens beyond the Management Committee, the difficulty of making it work effectively becomes amplified.

In recognition of this fact, the DG and the Deputy DG commissioned a multi-source evaluation of ILRI's directors and operating project leaders. The report on the 360° feedback process that was used identified substantial managerial strength, but also highlighted critical shortcomings that handicap the manner in which the management structure contributes to the successful implementation of ILRI's strategy. Among the most serious self-criticisms to emerge:

- Work planning that is time consuming but not very effective.
- Lack of effective delegation combined with excessive control of details (micromanaging).
- Organizational climate characterized by constant pressure to achieve goals.

The EPMR Panel acknowledges the value of a management structure that provides flexibility to the implementation of ILRI's strategy and also appreciates the DG's efforts to cultivate within ILRI's management team new skills linked to facilitation, collaboration and resource mobilization that might not have been needed in the past. It is therefore critical that every effort be made to support managers in their role and increase their effectiveness.

With this in mind the Panel endorses efforts underway to enhance managers' proficiency in the specific management skills that ILRI requires. In addition, given the feedback on the leadership and management survey concerning delegation and excessive control of details, the Panel suggests that the DG and the management committee assess how to improve and refine their own contributions to ILRI's management.

ILRI having identified the weaknesses in key management proficiencies, *the Panel recommends that the DG and DDG institute comprehensive training and development opportunities for all managers and hold themselves and managers responsible for improvements in performance. (Recommendation 15)*

5.2.2 Human Resource Management

Human Resource (HR) Management is an extremely important function at ILRI and one that has faced challenges in the last few years. In recognition of this, ILRI's management has been working to strengthen the HR function and to improve the staff's perceptions of the department and satisfaction with its performance. While the alignment with ICRAF will enable ILRI to approach the reform of the HR function in ways that allow for the adoption and implementation of a wide range of best practices in HR, and potentially create a more fully staffed HR function, management has proceeded with a range of efforts that signal a commitment to having a responsive HR function in place as soon as possible. This has become a priority area for the board, through its Human Resource Committee, and progress is carefully monitored. At the time of the EPMR, ILRI was in the process of recruiting for a new director of the department.

Even with these positive developments, there are a number of issues in HR that need to be addressed in order for ILRI to sustain the quality and continuity of staffing it needs to meet its goals.

Staffing Planning

ILRI does not currently have a strategic staffing plan which would set out anticipated requirements and competencies for the scientific and management staff for the future. With higher levels of restricted support, there is the risk that the research staff ebbs and flows in ways disruptive to long term research goals and the ability to capture and hold specific expertise over time. The strategy for staff retention and succession is not clear—is it focused on finding and cultivating younger talent, recognizing that ILRI becomes a stepping stone to other assignments; or is its goal to attract and retain more experienced research leaders who will provide direction, leverage influence and support, and provide continuity to the research agenda. It is unlikely that ILRI would choose to do one or the other, yet having a sense of what the future will demand and approaching the staffing plan strategically are useful not only to projecting budgets but also to structuring the working environment and HR policies that will support the strategy.

The Panel recommends that as part of overall improvements to the HR function, ILRI develop a staffing plan which is cognizant of geography, anticipated disciplinary expertise and gender, and is consistent with the ILRI priorities.

Performance Assessment and Staff Development

The policies relating to performance assessment and career development and are important for encourage strong performance, ensuring transparency and equity, and staff motivation. ILRI management is in the process of reviewing the content and methodology of staff performance appraisal and is training supervisors to us the annual process effectively. As part of the 2006 cycle of performance assessments, the assessments were analyzed by HR to identify development and training needs among staff and devise an appropriate staff development strategy. An effective, well focused staff development and training program is a key element for maintaining staff skills and quality assurance and should be subject to regular evaluation for opportunities to strengthen it.

Diversity

The most recent data on staffing indicates relatively good diversity in terms of nationality and room for considerable improvement in terms of gender. At the time of the EPMR, there were 91 IRS staff (a number that has increased rapidly from 74 at the end 2005). The geographic distribution of IRS staff indicates the following by region: Africa: 33 individuals (36.3%); Asia, 6 (6.6%); Latin America, 5 (5.5%); and Australia, Europe and North America, 47 (51.6%).

Approximately 21% of the IRS staff is female; for NRS staff, women comprise approximately 12%. Among the membership of the Management Committee, three of the nine members are women.

As a general rule, but also as ILRI's research portfolio expands geographically, the Panel considers it important that ILRI increase the number of staff from developing regions other than Africa, and also that it place a priority on increasing the number of women on the Center's research staff.

Staff Councils and Committees

The Panel notes ILRI's efforts to maintain high levels of dialogue and communication between board, management and staff through the IRS and NRS staff councils, and to improve their overall function and value. The Panel recognizes that the staff councils are an important if imperfect mechanism for improving internal communications and identifying staff concerns. Two important efforts are underway that are designed to improve the councils—to clarify the role of the councils, and to bring the two councils together into a single entity. This latter effort is designed to emphasize the values and goals that ILRI staff have in common, however they may have been recruited, and embodies within it an effort across ILRI to reduce unproductive distinctions between IRS and NRS staff.

Through various staff-led committees, a broad range of staff is tasked with providing advice and monitoring on a range of programmatic and administrative concerns. It was evident that efforts are made to balance membership on these committees, to make efforts to overcome the challenges of participating from multiple sites and to use the committees effectively to build participation and ownership in decision making.

5.2.3 ILRI–ICRAF Alignment

ILRI and ICRAF, both with headquarters in Nairobi and a substantial number of research projects and activities centered in eastern and southern Africa, have initiated a formal alignment process focused primarily on research support and corporate services. To this end, a common plan between the Centers was developed in September 2006. The alignment is one of several efforts within the CGIAR to encourage collaboration, reduce duplication of effort and streamline and economize common functions. The regional MTP for east and southern Africa, submitted in June 2006 and which ILRI helped facilitate, is another.

The agreement between ILRI and ICRAF envisions that at the end of the alignment process, estimated to take three years to fully implement, there would be:

- A common research methods group
- Common HR strategy, systems and policy
- Common IT platforms and systems
- Common financial policies and processes
- Rationalized and common procurement and operations services
- Appointment of a joint member to the boards of both organizations and the harmonization of board meetings to facilitate more coordinated governance

Some aspects of the alignment are in place and provide insights into the benefits and limits of the plan. A director of the Research Methods Group has been retained by ICRAF and the two small units that existed at each of the Centers have been integrated with staff located at each Center. The benefits of this are clear—programs too small to be effective as separate units in the individual Centers achieve critical mass; the new group can expand the range and sophistication of its services and support; and with these advantages, the centralized capacity might at some point be able to contract with other Centers working in the region for services, making the RMG an increasingly economic solution not just for ILRI and ICRAF but for other Centers as well.

Similar progress has already been achieved in the areas of information and communications technology, where the Centers have had a common IT manager since 2001, and additional

benefits linked to the alignment are anticipated. Both Centers will jointly commission a review of IT in 2006 to explore the best strategies for more comprehensive alignment, including, for instance, integrated IT systems architecture across various functions of the Centers (grants management, HR, finance and bioinformatics).

The staffing pattern for the RMG and IT functions, with staff having a formal employment contract with one or the other but working for both, with a single program of work and a single management structure is likely to be the prevailing model as other functions are aligned.

While the EPMR Panel sees the obvious advantages of this alignment, it also sees the difficulty such deep collaborations and shared functions present to the Centers. One is the disparity in existing policies and functions between ILRI and ICRAF—in biometrics, for instance, but particularly in HR. Classification systems, pay scales, the rationalization of benefits and terms of employment, the flexibility to convert employees from one system to a new system in ways that minimize disruption and will be perceived by staff as neutral if not advantageous will be difficult to resolve without leadership and a whole-hearted commitment on both sides to the process of change.

Another challenge is the differences in the current financial flexibility of each Center to invest in a process that may achieve savings in some areas but at the outset will clearly demand significant upfront investment of resources as well as a commitment to ongoing investment in order to preserve value (when combined, RMG and IT may provide efficiencies and economic value that could not be experienced if separate, but the need to step up investment in technology infrastructure on an ongoing basis may only slow the growth of expenses in these areas rather than reduce them, even in the short term.) ILRI at the moment has somewhat greater financial flexibility than ICRAF in this regard. Nevertheless, it is unrealistic, not to mention imprudent, to expect that it invest more in the alignment process because it can. This circumstance also creates a brake on the pace of the alignment (a request to the CGIAR is designed to mitigate this problem).

The Panel was impressed with the progress that has been made in completing the proposed alignment. Overall, the alignment is a positive development for the two Centers and could provide a case study for similar alignments throughout the CGIAR System. In addition, it was clear to the Panel that the alignment, like the sub-regional MTP, offers a strong and viable alternative to the pressure within the system and among some donors to pursue more aggressive alignments, including possible mergers of Centers in Africa.

The Panel commends ILRI for exploring as full an alignment as it has with ICRAF, and for the progress made to date.

5.2.4 Communications

The communications function at ILRI comprises a wide range of activities, including management of ILRI's presence on the web, ILRI-net (the internal online communications system), the Information Centers in the Nairobi and Addis Ababa which incorporate the former libraries on both campuses, publications including electronic multi-media training material, and public awareness. The communications unit is overseen by the Director of Communications and Partnerships.

The communications strategy and function at ILRI are sophisticated and well articulated. In 2003, the Center commissioned a study of this aspect of its work, which included a number of useful recommendations, most of which ILRI implemented. ILRI's current strategy carefully differentiates between the information needs of different stakeholders and networks of influence from scientific experts, development professionals, policy makers, and "end users" (trainers, extension agents, livestock farmers and local knowledge networks) to the media and the public, and develops communications vehicles and dissemination strategies tailored to each.

The results are impressive. Particularly with its published materials, ILRI has produced a distinctive graphic identity that is visually alluring and highly effective. It makes exceptionally good use of photography to capture interest and build a strong corporate identity for ILRI.

A prevailing goal of the communications strategy is building participation and engagement. The published material does this exceptionally well, but the goal can also be seen in the organization of the libraries as Information Centers, the architecture of ILRI's web-based products, and the development of ILRI-net. The Information Centers make a concerted effort to lower the threshold to using them. In the Addis Ababa Information Center, where more than 1,000 students and members of the immediate community have registered to use the facility, including its internet café, this was particularly evident and successful. The physical configuration of the Nairobi campus and security concerns make this a more difficult objective to achieve, but the Panel hopes that ILRI will make every effort to make the Nairobi Information Center equally accessible.

A comparable desire to broaden access and participation is evident in the degree to which the research staff is encouraged to post material, including training materials, on the web, and the ILRI-net is kept current by staff and routinely accessed by them to stay informed.

Not surprisingly, the ILRI/ICRAF alignment does not include alignments for either communications or resource mobilization. A significant objective in both activities is to establish and reinforce a distinct and effective corporate identity, which is realistically achieved only with a strong sense of advocacy and ownership, something shared staffing and coordination with another Center can not achieve.

The Panel commends ILRI for its communications strategy and the effectiveness in helping ILRI to advance its goals.

5.2.5 ILRI Facilities and Their Management

Because ILRI owns and operates large campuses in Nairobi and Addis Ababa, owns a farm on the outskirts of Nairobi, and manages a substantial facility in Debre Zeit, the Panel considered ILRI's responsibilities in this area to be a demanding aspect of its management responsibilities, and because of the costs involved a significant factor in ILRI's financial planning and flexibility. As of early 2006, ILRI staff numbered 303 in Kenya and 419 in Ethiopia. Later in the report, the Panel makes a recommendation with respect to the sites themselves. In this section it looks at ILRI's employment obligations and management strategies with respect to its facilities.

ILRI's current obligations to employ a substantial workforce to operate its facilities cannot wholly be discussed in the context of corporate services. Among the goals management seeks to achieve are the control of costs, the preservation of asset value, and a positive relationship with

employees drawn from the local community. For many reasons, ILRI is attempting to shift an assumption by local staff of life time employment by the Center. ILRI provides consistent support for its local staff to learn new skills and develop their personal capacities, not always linked necessarily to a work-related benefit to ILRI. In addition, ILRI has encouraged the formation of cooperative businesses by former employees through modest investment in start up costs, technical assistance and by serving as the new businesses' first clients and customers. This has been an effective strategy in Nairobi, where the economy, culture and the regulatory climate reward this level of enterprise and initiative. This initiative has been slower to take root in Ethiopia, which has only recently begun to encourage wide scale private enterprise.

Aligned with its goals in facilities management, ILRI has also outsourced many services at its two campuses, including subcontracting with Johnson Controls to manage significant aspects of its Nairobi campus. In doing this, ILRI achieves cost savings, quality assurance and accountability, but more important, assures that it has garnered a level of expertise in facilities management that it could not effectively achieve through internal management of these functions, and reduces further the scale of its management obligations.

The EPMP Panel recognizes both the prudence of ILRI's approach to this sizeable set of management tasks, and the fairness of its efforts toward its local employees.

ILRI Facilities in Kenya and Ethiopia

ILRI has responsibility for the management of substantial real estate in Kenya and Ethiopia. These include the headquarters in Nairobi, a ranch in Kapiti (which is structured as a separate corporation), a residence in Nairobi, the principal campus in Addis Ababa, and a research station at Debre Zeit. The total value of these properties is estimated at US\$27.7M (at historical costs). These are unusually extensive holdings for a CGIAR Center and are the most concrete legacy of the 1994 merger.

Given the substantial resources required to manage and maintain these holdings, the Panel could not fail to look beyond the current uses of the facilities for research-related activities and comment on the role of these facilities in ILRI's future. In addition to extended stays at the Nairobi campus, members of the Panel visited the Ethiopian facilities in Addis Ababa and Debre Zeit as well as the ranch at Kapiti, and while in Addis met with representatives of the other CGIAR Centers who are hosted there.

In 2002, ILRI commissioned a CCER on its Ethiopian facilities and proceeded to implement its recommendation to create a regional campus of excellence, principally by actively accommodating research staff from other CGIAR Centers and comparable organizations, and building collaborative research projects between ILRI and the Centers that benefit both from common research interests and proximity.

This has been done with considerable success. At the time of the EPMP, 11 organizations, nine of them CGIAR Centers, were being accommodated at Addis, including IFPRI/ISNAR, which is based there. In 2005, rental income covered approximately 25% the cost of maintaining the facility. Additional revenue at Addis totaled US\$345,000, which included incoming from housing, workshops and seminars held on the campus, and reimbursement of direct costs associated with the use of the facility and support services by hosted institutions in connection with specific research or activities.

ILRI is presently assessing ways to enhance the use and mitigate the cost of Debre Zeit. A staff committee is framing the scope of a study that management will commission. In the meantime, ILRI has taken intermediate steps to reduce expenses.

The Panel raised the following issues:

- Whether there is an opportunity to restructure the management and “ownership” of the Addis campus in a way that would spread the responsibilities and risks more broadly with other CGIAR Centers.
- Whether the residence in Nairobi could be sold.

The Panel recommends that ILRI undertake a comprehensive reassessment of its current sites in Kenya and Ethiopia, exploring all options with respect to the management and disposition of its properties. (Recommendation 17)

5.3 Financial Management

5.3.1 Financial Performance

ILRI's financial performance is shown in the financial statements given in Table 1, Annex 10. Overall, ILRI's financial position is strong and its management of financial resources has been sound. In recent years, revenues have increased in nominal terms after a period of no growth, and expenditures have been carefully controlled. There have been surpluses since 2003, adding to the reserves and enhancing total net assets. ILRI is, however, planning large expenditures during the period 2006–2008 to support investments in ILRI facilities in Nairobi, including participation in the BecA/ILRI shared research platform, as well as investments in additional research staff which will reduce reserves by about 11% in 2006 and 24% by the end of in 2008 (Table 2, Annex 10).

With the short term solvency indicator well above 200 days in both 2004 and 2005, ILRI has been substantially above the recommended CGIAR minimum target of 90–120 days. The adequacy of reserves for long term financial stability (209 and 233 days in 2004 and 2005, respectively) also exceeds the CGIAR minimum target of 75–90 days. While the indicators appear high, the anticipated capital investments over the next two years will bring the long term indicator down to approximately 81 days by 2008.

The effectiveness of cash management for restricted operations indicator is the restricted accounts receivables as a proportion of the restricted payables which at 0.79 was below the average of 0.9 for all CGIAR Centers. This indicates that ILRI is managing its cash flow from restricted operations effectively. Additionally, the efficiency of operations indicator, which measures the ratio of indirect costs to direct costs of restricted projects, is 17%; also better than the average of about 22% for the other Centers.

The Panel commends ILRI's management for its strong performance in financial management and for the financial security it achieved during a period of significant change and uncertainty in donor contributions. Looking ahead, ILRI faces challenges. As discussed below, when ILRI's current budget levels are adjusted for inflation, ILRI's budget is effectively smaller in 2006 than it was at the time of the ILCA/ILRAD merger by 18%. Its budget today also reflects a higher percentage of restricted project support, a trend likely to continue. ILRI faces significant financial constraints relative to the breadth of its mandate, and consequently, ILRI's management and

board must take a longer view toward positioning its financial and management strategies if it is to achieve its vision and goals.

5.3.2 Resource Allocation Priorities

The resource allocation across themes and the administrative and management costs are set out in Table 1. Financial allocations should support the research objectives as well as enable efficient operations. In 2002, the total expenditures on themes amounted to US\$19.8M (\$21.6M if research support is included) or 66% of total expenditures. In 2005, the expenditure on themes had decreased somewhat but still amounted to US\$19M or 56.7% of total expenditures. However, in 2008, expenditures on themes are projected to total US\$17.8M (\$20.4M if research support is included) or 46% of the total. This is about 20% lower than 2002 in absolute terms, and would be lower in real terms if the figures were discounted by the rate of inflation. (Substantial line item allocations appear in the table for BecA and IPMS and distort somewhat the overall budget trend as well as the levels of ILRI's expenditures on research. Although, the majority of funds in both projects effectively "passes through" ILRI to partners because of the nature of the projects themselves, some part of the funds in BecA and IPMS will flow to ILRI's research themes. This is not reflected in the totals allocated to the themes as presented in Table 5.1).

Table 5.1 Expenditure per Theme 2002 – 2008 (US\$ '000)

Theme/Unit	2002	2003	2004	2005	2006	2007	2008
Theme 1	1,631	2,168	1,942	2,679	2,331	3828	4,007
Theme 2	2,886	2,630	3,638	3,232	3,427	--	--
Theme 3	3,283	2,927	2,600	3,153	3,474	4,474	4,345
Theme 4	9,449	8,508	6,861	5,913	5,685	5,558	5,472
Theme 5	2,539	2,996	2,869	4,015	4,455	3,320	3,990
Research Support	1,820	1,495	2,146	2,495	2,587	2,763	2,588
Other program-	0	0	0	0	0	0	0
- SLP	315	188	733	593	1,191	897	902
-BecA	0	0	1,522	2,024	5,950	9,868	4,010
-IPMS	0	0	370	1,405	3,880	3,896	3,923
Other Collaborators ⁴⁷	338	296	644	64	0	--	--
- Overhead ⁴⁸	0	0	0	0	806	761	480
Sub -total	22,261	21,209	23,325	25,573	33,786	35,365	29,717
	0	0	0	0	0	0	0
Directorate	628	649	1,669	778	1,499	1,058	1,093
Partnership and Communication	2,182	3,741	2,326	2,252	2,755	2,807	2,853
HFRA	2,807	3,984	3,617	3,258	3,484	3,230	3,160
Depreciation ⁴⁹	2,137	2,038	1,860	1,621	1,905	2,137	2,041
Sub -total	7,755	10,412	9,471	7,909	9,643	9,232	9,147
Total	30,016	31,621	32,796	33,482	43,429	44,597	38,864

⁴⁷ Local costs of research activities undertaken by certain collaborators within ILRI projects and facilities.

⁴⁸ Overhead costs not recovered.

⁴⁹ Costs earlier include in HFRA (Human, Finance and Administration).

Expenditures on administrative and management activities (excluding depreciation) have remained constant since 2002 at approximately 18.7%, and in 2008, are projected to be 18.3%. Consistent with any projections, particularly those two years out, the estimates of income and expenses have been approached conservatively and will undoubtedly change as donor decisions become clearer and estimates can be made more precise.

In terms of its global or geographic mandate, if the calculation were based on the location of the team leader of projects in places other than Ethiopia and Kenya, ILRI spent 7% of its budget in 2005 (5% in 2004) outside of those two countries (Table 3, Annex 10). More accurately, though, if the costs are determined on the basis of the location of a project with the time of staff and management in Africa included in the calculation for projects located in Asia, West Asia and North Africa, and Latin America and the Caribbean, the amounts spent on projects in countries other than Kenya and Ethiopia increase to about US\$7.1M or about 23 % of the total expenses in 2005 (\$6.5M or 21% in 2004). (Table 4, Annex 10). The difference between direct and indirect expenditure on areas outside East Africa is evident in the projects and postings of staff as discussed in Chapters 2, Strategic Planning, and 3, Research Program.

In the Panel's view, ILRI management needs to assess the trends in funding the Center faces (both the decline of resources in real terms and likely increases in donor restricted funding), clarify its priorities in terms of research and its global mandate, and in view of the long gestation periods in achieving results in livestock research, develop in a longer term approach to its strategy development and operational planning (see Chapter 2).

5.3.3 Revenues and Expenditure Growth

Despite recent increases in ILRI's revenue, performance is less positive if viewed in real terms and in the context of the increasing shift to restricted funds. In 1994, at the time of the ILCA-ILRAD merger, total revenues amounted to US\$26.1M, grant income from various donors was US\$24.8M, and restricted funds amounted to 19%. By 2000, total revenues were US\$25.1M, of which the grant income was US\$23.3M (lower in each case in absolute terms than in 1994), while the restricted funding had increased to 51%.

There have been improvements since 2000. In 2005, total revenues amounted to US\$34.3M of which grant income was US\$31.8M and restricted funding was 55% of that. Part of the increase in revenue in 2005 reflects Canadian funding for BecA. In view of anticipated funding for this project, ILRI is projecting increases in its budgets beyond 2005. (Canada has recently agreed to support the second phase of BecA (2006 – 2008) with a grant of CA \$25M, equivalent to about US\$ 21M.)

The situation on funding and revenues when viewed in real terms presents a more realistic perspective of the constraints ILRI faces. Using the average rate of inflation (CPI for all items) of all OECD countries as an approximate indicator, and using 1994 as the base with revenues of US\$26.1M, the real value of ILRI's revenues in 2005 amounted to US\$21.5M in 1994 dollars or a decline of 18% (funds for BecA and IPMS were excluded from the 2005 revenues to calculate these results). Financially, ILRI was a smaller organization at the end of 2005 than it had been 10 years earlier.

This is not unique to ILRI; other CGIAR Centers are facing a similar situation, but the situation itself and its implications have import for the current EPMR.

5.3.4 Resource Mobilization

As noted earlier, 55% of ILRI's budget now comprises restricted funds. The increase over time in the amount of support that now comes with donor restrictions is a trend that may stabilize but is unlikely to reverse itself. ILRI's responsibility is to minimize the impact of such funding on priority setting, and on its capacity to sustain a long-term research agenda with short-term financing. To make the most of current reality, it must position itself to be as strategic as possible, as competitive as possible and as efficient as possible in pursuing and managing donor support.

ILRI's resource mobilization plan appears to provide a reasonable framework within which donors will be cultivated and grants will be pursued. Shaped by the priorities identified in the MTP, it emphasizes the preservation of support from existing donors who provide unrestricted funding and creates a hierarchy from there that tests each potential source of support for both the length of the potential commitment and the degree of potential latitude or restriction that will accompany support.

Resource mobilization is a shared responsibility that engages all of the Center's key players, from the DG and board to theme directors and OP leaders. While this may contribute to an enterprising culture and shared ownership of success, it requires a fairly uniform level of competence in fund raising by staff who may have little real talent for it. The Panel understands the contemporary reality that dictates that everyone take responsibility for garnering resources, but the Panel also sees the value of having more professional fund raising capacity in place on an ongoing basis. ILRI was in the process of recruiting a resource mobilization manager at the time of the EPMR to address this need.

The recruitment of a resource mobilization manager is a positive step toward bringing ILRI's efforts in this area to a more effective and better supported level. This step needs however, to be complemented with a more comprehensive resource mobilization plan.

ILRI has made strides in the area of grants management, with good cost recovery practices that are subject to ongoing improvement, and the ability to keep its receivables low with respect to restricted donors. It has increased capacity within the finance and administration division to support the budget development process for grants, which helps to assure that grant requests have budgets that accurately capture all costs and that costs are characterized in a standard fashion. Staff in the same department also generate donor reports (approximately 190 a year), which provides substantial efficiencies.

The analysis that appears below (Table 5.2) shows the duration of restricted grants in ILRI's portfolio as of May 2006. Knowing the percentage of grants with life spans greater than two years and the value of those grants with maturities above and below two years are useful indicators. When positive, they enable ILRI to plan with a measure of certainty and security. At 46 percent, the percentage of grants with life spans greater than two years is relatively neutral; as is the dollar value of grants that match that life span (US\$10.4 mil.) Less positive indicators may be the total number of grants under management (142), and the distribution of smaller grants as a percentage of the total number of grants. ILRI figures, also for May 2006, show 39% of the grants

had a value of US\$50,000 or less and 50% had values under US\$100,000. Although the size of grants may not always be within ILRI's control, the costs associated with applying for and managing grants are relatively fixed; too many small grants are fundamentally uneconomic for ILRI and the percentage of such grants needs to be monitored to minimize this effect.

Table 5.2 Summary of Grant Durations

Grant Duration	Number	% in #	Amounts (US\$)	% of Funds
< 1 Year	43	30%	2,735,418	5%
> 1 Year < 2 Years	34	24%	7,623,553	14%
> 2 Years < 3 Years	33	23%	10,530,175	19%
Above 3 Years	32	23%	34,944,357	63%
Total	142	100%	55,833,503	

May 31, 2006

5.3.5 Reserves Management

ILRI has two categories of reserves: designated and undesignated reserves. The designated reserves are for investments in fixed assets; undesignated reserves function as ILRI's cash reserves. The Board approves the allocation between these two categories. As of 31 December 2005, the designated reserves amounted to US\$13.9M and the undesignated reserves amounted to US\$18.2M.

This level of undesignated cash reserves is intentional ILRI's part and has been achieved by controlling and reducing costs, including capital expenditures. The size of the undesignated cash reserves acknowledges the long term nature of live stock research and the need to provide continuity to existing projects in the event project support is reduced or eliminated. The cash reserve also enables ILRI to seize opportunities quickly in the absence of timely donor support, and gives ILRI the flexibility to meet donor matching requirements when necessary.

A forecast of net assets is given in Annex 2. The forecast indicates that by the end of 2006 ILRI will have reduced its undesignated reserves to US\$10M, largely because of renovations of its facilities that coincide with investments in the BecA Hub, and the recruitment of new research staff.

By the end of 2008, ILRI's reserves are projected to be at 81 days. The Panel, therefore, suggests the board carefully monitor the level of undesignated reserves to ensure that these are maintained at levels consistent with the needs of ILRI, and to mitigate the financial risks inherent in pursuing long term livestock research.

5.3.6 Investment Management

The investment policy of ILRI was established in 2000 and has not been revised since. The current policy lacks a well articulated strategy for preserving long term value and provides no guidance in terms of types of investments, allocations across financial institutions or an assessment of risk in relationship to returns. ILRI funds are, therefore, invested in maturities of

12 months or less, in current accounts and bank deposits mostly in US dollars, Euros and pounds sterling. The returns were 1.28% in 2004, and 3.27% in 2005. These returns could be improved with a revised investment strategy.

ILRI management is in the process of recommending to the board the hire of a professional fund manager. The manager will be asked to propose an appropriate investment strategy to ILRI management and board.

ILRI management is also considering partnering with ICRAF on the management of reserve funds to provide greater leverage in dealing with the investment management firm and save on management fees.

Any changes to the current approach to managing ILRI's cash reserves need to be based on a prudent set of investment policies and approved by the board. The policies should define carefully the level of risk that is acceptable for ILRI in order to achieve sound results. The Panel strongly encourages the board to adopt appropriate policies in this area and encourages management to hire professional expertise as well as explore the possibility of joining with another Center or Centers to achieve savings and improve results. This is part of the recommendation made by the Panel relating to finance matters that appears at the end of the chapter.

5.3.7 *Financial Accountability and Audit*

With the appointment of the current Director of Finance, Human Resources and Administration, ILRI has undertaken significant efforts to strengthen budgeting, accounting and control systems within the Center. The internal control systems work effectively, and the finance staff are experienced and well motivated. The Panel's judgment is that ILRI has developed good mechanisms for financial accountability. These include the role of the board's Finance and Audit Committee, financial reporting mechanisms, and external and internal auditing.

The **Finance and Audit Committee** provides oversight of the finance and audit functions, and assists the board with its responsibilities in this area. The Governance section of the EPMR recommends a number of steps to improve the performance of this committee and the board overall with respect to financial stewardship. The Committee approves the selection of the auditor, reviews the terms of reference and meets with the external auditor to review the results of the audit and the contents of the management letter prepared by the auditor. It also reviews the plan of work and results with the internal auditors. This committee should take the lead in recommending investment policies and reviewing investment strategies and results.

The **external audit** of ILRI is carried out by the Ernst and Young, an international firm of public accountants. The Panel reviewed the audit reports and the management letters of the auditors. There are currently no major weaknesses cited with internal controls, though a number of issues are highlighted. These are being followed up by management.

The **internal auditing** function in ILRI is well established and reports to the DG. It has the necessary independence and authority to carry out its review work. The unit prepares an audit plan based on risk management for ILRI covering the Nairobi and Ethiopia offices. The Panel believes it is important that the Finance and Audit Committee assess annually whether internal audit resources are adequate to carry out the mandate of the unit, and that the committee review

both the adequacy of the plan of work and the ability of the internal audit unit to address it. It may be necessary for ILRI to retain outside expertise in areas of the internal audit beyond the scope of the unit, particularly with respect to investment management and performance, the management of field offices, and travel services.

The Panel recommends that ILRI continue to improve its financial management through adoption of a new investment strategy, a more comprehensive resource mobilization plan, and more efficient grants management. (Recommendation 18)

6 CONCLUSIONS

Reviewing an organization as diverse as ILRI and one that operates so well requires that the reviewer look at both the direction in which the organization is moving and any deficiencies that will hinder its progress. In the case of ILRI, the Panel identified a number of areas where, despite its innovative approach and its successes, ILRI needs to improve. The Panel introduced a number of questions in Chapter 1 that it used at a starting point for its work. In the conclusion, we want to return to those questions and present some summary responses from the analyses presented in the main document.

Is it the international livestock research center or the cattle center for Africa? ILRI today is indeed the international livestock research center, having widened its portfolio of activity beyond cattle and beyond Africa. Its progress is the basis for further expansion, giving the opportunity to build on its own experience and that of other CGIAR Centers. With staff reallocations, co-location with CGIAR Centers and continuation of the current mode of multi-country projects, ILRI will become an even more international center.

ILRI's approach to its global responsibility has served it well in establishing for itself its own identity and strategy as an institution. For the most part, it has resolved the complexity and disruptions of the merger that brought it into existence. It can now determine whether it follows the route of large regional programs or pursues selected nodes of research in strategic locations. This Panel has clearly indicated that the latter is to be preferred, and to do it ILRI must increase its presence in Asia and West Africa. For ILRI to reach these regions requires not only physical presence but also strategic partnerships to build substantial and critical mass. ILRI already produces IPGs of broad applicability to Africa and the approach may be expanded into West Africa through interaction within the West and Central African sub-regional MTP, without an excessive additional burden. In Asia the focus on India is appropriate and should be strengthened; SE Asia requires rethinking, a concentration of more resources and better exploitation of other CGIAR Centers' networks and regional relationships. Currently ILRI has hardly any presence in Latin America, and it cannot be expected in the near future to increase its physical presence and direct project involvement. Its relevance to Latin American livestock research and development will be by actively disseminating appropriate training materials, tools and methods and research results.

Is ILRI merely a convergence of ILCA and ILRAD activities or is it a genuinely new vision for livestock research? The antecedents of ILRI have all but passed on and ILRI is a new and independent organization that has shown itself to be visionary and dynamic. Its holistic systems approach, while sometimes confusing to those who prefer discipline-based approaches, has proved itself efficient in covering complex scenarios of poverty alleviation where livestock are involved. It has done this in a manner that could not have otherwise been considered by including non-technical factors of research. The trend that has been established by the systems approach, with appropriate strengthening of global coverage and management and planning systems, may well position ILRI as a leader in management of development research.

Is ILRI able to determine its research agenda or is it formed or overly influenced by the funding environment? As with all Centers, ILRI faces limitations imposed by the donor community. It addresses this through planning processes that are expressed in the MTP, which because it is revised each year allows it to re-examine its priorities and opportunities within its agreed strategy. The Panel has recommended a refinement of the planning process to include a more

comprehensive business plan, ahead of any external requirements for such planning. The Panel believed that with a more comprehensive plan that looks at resource and capacity requirements more broadly and over a longer period, ILRI will be a powerful institution that will be better able to engage donors in their research-for-development plans in areas concerning livestock.

Is ILRI creeping into development activities or is it engaged in insightful research designs suited to development outcomes? Overall ILRI has maintained a tight focus on research, including economic, policy, markets and technical research. In the view of the Panel, its only project with a large development dimension should be a one-off experience, used to stimulate activity in innovations research. With the continued refinement of its approach to identifying and studying constraints, ILRI will become a source of knowledge for the adoption of improved research outputs without having to be directly involved in managing development projects.

The question of development also relates to the balance between research conducted by ILRI, such as research framework design, and biophysical research, and process research with its connotations of managing knowledge as much as creating it. ILRI's approach is one of knowledge creation and management across systems that include biophysical research as part of process research. This is demanding in itself and made more so by the Thematic program structure with its overlapping elements. However, the management cost of this approach is beginning to show returns and appears the only viable choice for a global livestock center with such a relatively small budget. The alternative, to focus on a few biophysical subjects, would be a return to the past, which did not work even when ILRI's predecessor organizations were limited to one continent. At the same time, there is a need for continuous vigilance in IPG creation when engaged in local or regional processes. ILRI is balancing these matters reasonably well, although it can improve by expanding IPG outputs beyond Africa and making a physical commitment to other regions where it can operate using the same systems approach. While some donors seem inclined to demand that ILRI conduct its own research or increase biophysical research, these are minority views.

Does ILRI overemphasize the assumption of a "revolution" that may trickle down to the poor, or is it reorienting itself to an emerging marginalized livestock sector? The ILRI focus on a "revolution" is more than an observed trend and the sole pillar of ILRI's work. In ILRI's case, the 'revolution' is used as shorthand for the critical and complex roles of markets in livestock development and the need for integrated research to determine the major constraints before allocating other research efforts. ILRI's research is structured around both the negative effects and opportunities of the "revolution" on the poor and poor livestock keepers, as well as on those who are remote from these changes. The Panel has suggested that ILRI both correct misconceptions and demonstrate clear linkages between the context of ILRI's work and its projects. In general, the economic arguments used to make major and necessary changes are appropriate to ILRI in the way it has been structured. As it moves on to become a truly global center, a more refinement and a broader perspective will become evident as a consequence of a systems approach that incorporates all disciplines.

If ILRI did not exist, the needs of the poor that are the concern of livestock research would not be addressed. The Panel strongly endorses ILRI's role in and approach to research for the poor as the most viable means of tackling systems as diverse as marginalized and landless livestock keepers, pastoral communities, persons beyond market opportunities, and integrated crop-livestock farms. It may be facile to say that if the world did not have an ILRI, we would

have to create one, but it is not facile to ask how we may continue to improve the efficacy of ILRI, as is the Panel has tried to do in this review.

The 20 System Priorities that CGIAR has formulated to drive its research agenda for the coming decade clearly recognize the importance of livestock research to improving livelihoods of the poor. In several areas, such as crop-livestock systems, policies and institutions, and capacity strengthening, ILRI collaborates with other Centers to implement these priorities. The Panel concludes that most of ILRI's current research, including the SLP, addresses CGIAR priorities, although some research while contributing to a priority is actually focused on another goal formulated before the SPs were conceived. Any necessary adjustments or reorientation will undoubtedly be made in future iterations of the ILRI planning process.

Continuous improvement is part of responsive management, and as ILRI has proved itself responsive to challenges of mandate and budget. We are confident that our recommendations for enhanced performance will be well implemented. As the Panel looks forward, we imagine an ILRI that follows a dynamic, fully resourced and fully costed business plan, which management uses for decision-making and a balanced and well-qualified Board uses as a reference for its reporting, monitoring and guidance. We see ILRI's governance and management supported by quality systems as the Center's leadership oversees scientific managers and scientists operating across the multi-disciplinary fields of livestock, and located in the poor regions of the world where livestock are important. When is that day? We believe it to be achievable within the decade with dynamic and resourceful management maintaining the momentum of a vision already in place and building on the changes recommended in this report. By the time of the next EPMR, one might expect to see ILRI having distinguished itself as the most credible leader in global systems research related to livestock and the poor.

Annex 1
ILRI SECOND EPMR PANEL COMPOSITION AND BIODATA

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FALVEY, Lindsay (Australia)

Position: Professor Em/Hon., Institute of Land and Food Resources, University of Melbourne; Life Member, Clare Hall, University of Cambridge; Director, Institute of International Development (Adelaide).

Expertise: Research management, international research and development, small-holder animal husbandry, traditions and equity.

Education: D.Agr.Sc., - University of Melbourne (2006); Ph.D., - University of Queensland (1981); M.Agr.Sc. - LaTrobe University (1977); B.Agr.Sc. (Hons) - LaTrobe University (1971).

Experience: 2000- : Reviews, research and writing on international agriculture and culture at Clare Hall Cambridge, Cornell, Stanford, Kasetsart and Melbourne; 1997-99: Dean and CEO, Land and Food Resources, University of Melbourne; 1995-97: Dean of Agriculture, Forestry and Horticulture, University of Melbourne ; 1990-93: Managing Director, Coffey-MPW Pty Ltd; 1984-90: Managing Director, MPW Australia ; 1981-84: Director, MPW Rural Development Pty Ltd ; 1978-80: University of Queensland – research in Thailand; 1976-78: Australian (International) Development Assistance Bureau – research in Thailand; 1971-76 Australian Government – research in Northern Territory of Australia. Author of 11 books and more than 100 papers, among other reports. Elected Fellow of the Academy (Technological Sciences) in 1997, and of AIAST in 1991; Centenary Medal of Australia 2003; various other awards.

VAN ARENDONK, Johan (The Netherlands)

Position: Professor of Animal Breeding and Genetics, Department of Animal Sciences, Wageningen University.

Expertise: Animal breeding, livestock genetic improvement, molecular genetics.

Education: PhD, Animal Breeding and Farm Economics (1985); M. Sc. (1982) and B. Sc. (1980), in Animal Science, Wageningen University.

Experience: Current post since 1998. 1989-98 Associate Professor Department of Animal Breeding at Wageningen, 1985-89 Assistant Professor. Research on breeding, genetics markers, genomics, small ruminants in the tropics, trypanotolerance in cattle, indigenous animal genetic resources including in Ethiopian sheep, poultry, pigs, small ruminants, cattle, fish. In editorial board of Livestock Production Science (since 1994), the Netherlands J. of Agricultural Science and the J. of Dairy Science; associate editor of "Genetics". He has averaged about 9 papers per year over the last 10 years in international journals as well as invited and contributed papers to international meetings, books and reports. Publications mostly on animal breeding. From 1986 to 2002 he has played active role in Commission

on Animal Genetics of the European Association of Animal Production of EAAP; Since 2002 also scientific director of graduate school WIAS. He has taught several international post graduate courses. In 2006 he was awarded the “Justus von Liebig Preis” by University of Kiel.

LEFÈVRE, Pierre-Charles (France)

Position: Responsible for the monitoring of the Ministry cooperation policy in developing countries, office for monitoring international cooperation, division of economic and international policy, Ministry of Agriculture, Food, Fisheries and Rural Development, France.

Expertise: Tropical Animal Diseases, Epidemiology, Research and Training Laboratory organization and management, Veterinary Services organization.

Education: PhD Doctorat d'État ès Sciences, Université de Paris XII, Pasteur Institute Degree (Paris): Bacteriology and Virology, General Immunology, Infectious diseases immunology, Epidemiology. Degree on Animal Raising systems and veterinary medicine in Warm countries Institut d'Élevage et de Médecine Vétérinaire des Pays Tropicaux (IEMVT).

Experience: Current post since 2002; 1998-2002: Veterinary Council – Ministry of Agriculture. 1997–98: Consultancies on epidemiological surveillance projects, World Animal Health Organization, Paris. 1994–96 Head of CIRAD-EMVT Department of Animal husbandry and Veterinary Medicine (CIRAD). 1991-93: Head of the Tropical Animal Diseases Laboratory “PATHOTROP”, CIRAD-EMVT, which is FAO Reference Center and OIE Reference Laboratory for Rinderpest, small ruminant pests and contagious caprine pleuro-pneumonia and OIE Collaborative Center for Animal Diseases Diagnostics. 1983-91: Head of the Infectious diseases department, *Institut d'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, France. 1980-83: In charge of the virology research programs, *Laboratoire national de l'élevage et de recherches vétérinaires*, Senegal. 1975-80: Head of the viral diseases laboratory, Laboratoire de Farcha, Chad. 1972-75: In charge of the Rinderpest vaccine production, National Veterinary Institute, Ethiopia. 1970-72: Deputy professor (Pathology), Faculty of Veterinary Medicine, San Carlos University, Guatemala. Has participated in Expert workshop on ILRI strategy in 1995.

ROBINSON, Maureen (USA)

Position: Independent Governance and Management Consultant.

Expertise: Governance, management, leadership and organizational development.

Education: B.A., The George Washington University (1974).

Experience: Since 1998, private consulting practice; 1990-98, founding Director of Education, National Center for Nonprofit Boards; 1987-90, Special Assistant, Office of the Assistant Secretary for Museums, Smithsonian Institution; 1979-85, Director of Government Affairs; 1975-79, Associate Editor of Publications, American Association of Museums. Publications: Nonprofit Boards that Work: The End of One-Size-Fits-All Governance, John Wiley & Sons, 2001; columnist, Contributions Magazine, 2002-present, writer/editor, CGIAR Board Reference Guides, (7 booklets), 1997; Developing the Nonprofit Board: Strategies for Educating and Motivating Board Members, National Center for Nonprofit Boards, 1994; The Chief Executive's Role in Developing the Nonprofit Board, National Center for Nonprofit Boards, 1998. Member of CIMMYT 5th EPMR Panel 2005.

RASHID, Pervaiz (Pakistan)

Position: Operations Advisor, World Bank, Europe and Central Asia Region: Country Policy and Services Department.

Expertise: Financial management, project portfolio management, financial and budgetary planning and monitoring.

Education: MBA (Finance, Policy and Management), Harvard University; MA Economics studies, Georgetown University; FCA (Fellow Member) - masters level program, Institute of Chartered Accountants, England & Wales.

Experience: Mr Rashid has worked as a manager and operations and financial adviser on a broad range of operational, country policy, and project related issues relating to all regions, and carried out

operational missions to countries in four Regions (Africa, East Asia, South Asia, ECA). Current post since 2004. Duties included advice to departmental and regional managements on improving quality of lending (investments, country strategy and other Bank wide policy issues); report and monitor regional portfolio performance and participate in training of regional ECA and MENA staff in design of appropriate lending operations; 1997-2004: Lead Specialist; Poverty Reduction and Economic Management; 1993-97: Financial Advisor, Russia and Central Asia Department; Responsibilities included: chair project review meetings; advise task managers on project management and processing issues during the project cycle and clear project documents at various stages through Board presentation. 1987-92: Financial Adviser, Operations Policy Department. Government of West Pakistan-Member Governor's Advisory Group..

SEMPEHO, George (Tanzania)

Position: Program Manager, Agricultural Services Support Program, Tanzania.

Expertise: Agricultural Economist.

Education: PhD Agricultural Economics, University of Stuttgart (1984); MSc. Agric. Econs., University of Leipzig, Germany (1979); BSc. Agric., University of Leipzig, Germany (1977).

Experience: Current post since 2004. 1989- to date: head of Research Planning, Monitoring and Evaluation Unit, Research and Development Division, Ministry of Agriculture and Food Security, Dar Es Salaam. 1998-2004: Manager, Tanzania Agricultural Research Project (Phase 2 funded by the World Bank). 1991-97 Manager, National Agricultural and Livestock Research Project; 1990- 91: Co-ordinator, National Agricultural and Livestock Research Masterplan, 1984-88: Research Officer, Tanzania Livestock Research Organization, Mpwapwa. 1983-84: Scientific Co-worker, Dept. of Agricultural Economics, University of Stuttgart, Germany; 1979-82: Research Fellow, Agric. Economics, Small Ruminant Program, ILCA, Nigeria and Ethiopia. Member of international consultancy team to review complementarities and synergies between the World Bank-funded projects and the CGIAR centers on agricultural productivity and profitability in the East Africa (completed 2005). Member, International Scientific Panel within the Inter Academy Council, which synthesized the role of Science and Technology in increasing Agricultural Productivity in Sub-Saharan Africa (completed 2003).

Annex 2
TERMS OF REFERENCE
FOR EXTERNAL PROGRAM AND MANAGEMENT REVIEWS
OF CGIAR CENTERS

BACKGROUND

Context

1. The Consultative Group on International Agricultural Research (CGIAR) is an informal association of over 50 members that supports a network of 16 international research centers in agriculture, forestry and fisheries. The CGIAR aims, through its support to the Centers, to contribute to promoting sustainable agriculture for food security in developing countries. Because the Centers constitute the core of the CGIAR, the effectiveness of each Center is crucial to the continued success of the CGIAR (as a System).
2. Each Center is an autonomous institution operating within the mandate assigned to it by the CGIAR, and is governed by a legally constituted Board that has full fiduciary responsibility for managing the Center. To ensure accountability in an essentially decentralized system, each Center is expected to be responsive to the CGIAR, which provides financial support for its work.
3. The CGIAR has established a tradition of External Program and Management Reviews (EPMRs) to provide a mechanism of transparency and accountability to the Members and other stakeholders of the CGIAR System. EPMRs are the joint responsibility of SC and the CGIAR Secretariat, and are conducted for each Center approximately every five years. As each Center is autonomous, EPMRs provide a measure of central oversight and serve as an essential component of the CGIAR's accountability system.

Integrated System of Reviews of Each Center

4. Besides the EPMRs, Center Commissioned External Reviews (CCERs) are undertaken at each Center. These CCERs are commissioned by the Center Boards to periodically assess the quality and effectiveness of particular aspects of a Center's work. The terms of reference (ToRs) for each CCER are determined by the Center, based on broad principles endorsed by the CGIAR at ICW95 (ref. document entitled *Improving the Quality and Consistency of CGIAR's External Center Reviews*, dated October 24, 1995).
5. EPMRs complement the CCERs by providing a CGIAR-commissioned and comprehensive external assessment of the Center's program and management, especially its future directions and the quality and relevance of its research. The ToRs for the EPMRs (which update the "standard ToRs" endorsed by the CGIAR at MTM95) are provided below. Guidelines for undertaking the reviews are issued separately.

TERMS OF REFERENCE

Objectives and Scope

6. EPMRs seek to inform CGIAR members that their investment is sound, or recommend measures to make it so. Members of the CGIAR and other stakeholders can be informed whether the Center is doing its work effectively and efficiently. EPMRs are both retrospective and prospective; and help ensure the Centers' excellence, relevance and continued viability, and the CGIAR System's coherence. Each review is expected to be strategic in orientation and as comprehensive as the situation warrants.
7. The broad objectives of EPMRs are to: a) provide CGIAR members with an independent and rigorous assessment of the institutional health and contribution of a Center they are supporting; and b) to provide the Center and its collaborators with assessment information that complements or validates their own evaluation efforts, including the CCERs.

8. The EPMR panel is specifically charged to assess the following:
- a) The Center's mission, strategy and priorities in the context of the CGIAR's priorities and strategies;
 - b) The quality and relevance of the science undertaken, including the effectiveness and potential impact of the Center's completed and ongoing research;
 - c) The effectiveness and efficiency of management, including the mechanisms and processes for ensuring quality; and
 - d) The accomplishments and impact of the Center's research and related activities.
9. The topics expected to be covered by the EPMRs are listed below.

TOPICS TO BE COVERED

A. Mission, Strategy and Priorities

- The continuing appropriateness of the Center's mission in light of important changes in the Center and its external environment since the previous external review.
- The policies, strategies, and priorities of the Center, their coherence with the CGIAR's goals (of poverty alleviation, natural resources management, and sustainable food security), and relevance to beneficiaries, especially rural women.
- The appropriateness of the roles of relevant partners in the formulation and implementation of the Center's strategy and priorities, considering alternative sources of supply and the benefits of partnerships with others.

B. Quality and Relevance

- The quality and relevance of the science practiced at the Center.
- The effectiveness of the Center's processes for planning, priority setting, quality management (e.g., CCERs, peer reviews and other quality and relevance assurance mechanisms), and impact assessment.

C. Effectiveness and Efficiency of Management

- The performance of the Center's Board in governing the Center, the effectiveness of leadership throughout the Center, and the suitability of the organization's culture to its mission.
- The adequacy of the Center's organizational structure and the mechanisms in place to manage, coordinate and ensure the excellence of the research programs and related activities.
- The adequacy of resources (financial, human, physical and information) available and the effectiveness and efficiency of their management.
- The effectiveness of the Center's relationships with relevant research partners and other stakeholders of the CGIAR System.

D. Accomplishments and Impact

- Recent achievements of the Center in research and other areas.
- The effectiveness of the Center's programs in terms of their impact and contribution to the achievement of the mission and goals of the CGIAR.

**LIST OF STRATEGIC ISSUES IDENTIFIED BY THE SCIENCE COUNCIL
TO BE ADDRESSED BY THE 2ND ILRI EPMR PANEL
AS A SUPPLEMENT TO THE STANDARD EPMR TORS.**

1. Considering ILRI's 5 Projects, the Systemwide Livestock Project and ILRI's other inter-center involvement, are there elements that do not address the System Priorities? In particular, how is ILRI incorporating SP 1C (Promoting conservation of indigenous livestock) in its program?
2. Does ILRI have appropriate balance between i) its own research vs. framework design, facilitation and product systems delivery; ii) biophysical research vs. research related to processes; and iii) creating new knowledge vs. managing knowledge?
3. Do the governance and management relations agreed between ILRI and BecA and ILRI and other private sector partners protect ILRI against financial, biosecurity and IPR related risks? Has BecA taken over the technological research of the institute and does that affect the positioning of ILRI in the CGIAR System?
4. Is ILRI's plan to execute a global agenda in appropriate locations best way forward for a global livestock research institute, rather than having fully fledged regional programs? Is it investing too heavily in Eastern Africa (viz. a viz. SSA as well as Asia and LAC) to prevent it from fulfilling its global mandate?
5. Are the new arrangements of co-location at the Ethiopia Campus working for ILRI's benefit?
6. What progress is being made towards achieving cost savings and improved research support through shared services and support centre with ICRAF?
7. What lessons learned emerged from the initial ESA MTP exercise this year? What, if any, revisions to strategic research directions/focus or to governance and management does this suggest for ILRI?
8. What are the IPG gains from ILRI's considerable recent investments in spatial analysis and poverty mapping work (largely on restricted funding) and what, if any, future directions are there for such work?
9. How does the Center envision addressing specific goal 2 under new CGIAR priority 4D, concerning livestock producers in low potential areas, and to what extent is it collaborating with ICARDA and other partners (e.g., AU/IBAR) in this line of research?
10. How is ILRI Board's Scientific Advisory Committee working? Are lessons for the other Centers?
11. Is ILRI's role in certain global livestock issues such as animal genetic resources and diseases of trade appropriate regarding its capacity and mandate and those of its partners, mainly FAO.

Annex 3
ITINERARY OF THE EPMR PANEL

Schedule:

3-5 April, 2006:	Lindsay Falvey and Maureen Robinson attended the ILRI Board meeting in Nairobi.
15-19 May, 2006:	First phase: whole Panel visited ILRI headquarters in Nairobi.
9-12 July, 2006:	George Sempeho visited Uganda and had meetings at ASARECA, Makerere University and the Secretariat of the Ugandan National Agricultural Research Organization.
9-17 September, 2006:	George Sempeho visited Mali, Nigeria and Ghana and had meetings in the following institutions: Mali: Ministry of Livestock and Fisheries Development, Institut d'Economie Rural, National Agricultural Research Council, and ICRISAT Regional Center; Nigeria: ILRI activities at IITA's Kano station, Ahmadu Bello University in Zaria, and IITA at Ibadan; Ghana, FARA Headquarters and the Animal Research Institute.
6-13 September, 2006:	Lindsay Falvey visited countries in Asia. He met with ILRI's Hanoi-based staff and staff in India. In China he met ILRI stakeholders in Sichuan, and in India he visited ICRISAT in Hyderabad.
2-13 October, 2006:	Main Phase: whole Panel visited ILRI headquarters in Nairobi.

Annex 4

LIST OF DOCUMENTS REVIEWED BY THE PANEL

1. Terms of Reference and Guidelines for External Program and Management Reviews of CGIAR Centers
2. Report of the First External Program and Management Review of ILRI
3. Summary of actions taken in response to the last EPMR
4. CGIAR research Priorities 2005-2015
5. The latest Board-approved Strategic Plan of the Centre: Livestock – A pathway out of poverty. ILRI strategy to 2010
6. Medium-Term Plans of the Center for the period of the review
7. SC commentaries of the Center's Medium-Term Plans
8. Centre Commissioned External Review Reports:
 - Vaccine Research CCER – 2000 (Phase 1: J.Preston, K.Danner , T.Doel, V.A. Srinivasan, M.Rweyemamu, A.Irvin, A.Tait, A.Nash, P.Overath)
 - SLP, 2001 (JR. Anderson, OB. Smith, RR. Vera)
 - Livestock Genetics and Genomics Program, 2002 (B.Kinghorn, N.Künzi, M.Georges, L.Setswaelo, RA.Cardellino, G.Kiwuwa)
 - ILRI Facilities in Ethiopia, 2002 (DR.MacKenzie, M.Moussie, Av.Schoonhoven)
 - Strategic Options in Communications: Establishing ILRI as a Global Leader by Bridging Excellence in Livestock Research and Poverty Reduction, 2003 (JF.Asaba, RS.Day, Kv.Grebmer)
 - Review of Biometric content of ILRI projects, 2004 (E.Allan, C.Barahona, F.Underwood, G.McLaren)
 - Capacity Strengthening Unit, 2004 (A.Youdeowei, D.Rangneker, J.Danne)
 - Spatial Analysis and Systems Modeling (SASM), 2005 (J.Alwang, M.Shah, R.Mathews, A.Mukhebi)
 - Management and Use of Forage Genetic Resources, 2005 (B.Maass, C.Ramesh, C.Nkhoma)
 - Partnerships, 2005 (J.Hagmann)
9. Donor commissioned external review reports:
 - Monitoring of CGIAR Projects Co-funded by the European Commission In 2003 In Asia, Latin America And The Mediterranean Regions.
 - Developmental returns from investing in International Agricultural Research – DANIDA Working Paper Volumes I and II
 - CASREN review
 - Progress Report on “Integrated control of East Coast fever constraining livelihoods of smallholder farmers in sub-Saharan Africa” December 2005
 - Progress towards development of a subunit vaccine against ECF project; December 2004
 - A summary of the Minutes of the ECF Vaccine Project Review – March 2003
 - Highlights of the ECF Vaccine Technical Review
 - DFID East Coast Fever Vaccine Program – Review Dec 2005
 - Program for Enhancing the Impact of Immunization against East Coast Fever with an Improved Sub-unit Vaccine on the Smallholder Dairy Sector in Eastern Africa – IFAD Report.
 - Review of the Project “Enhancing Livelihoods of Poor Livestock Keepers Through Increasing Use of Fodder: India and Nigeria
 - Mid Term Evaluation of the CFC Financed Project: Enhancing Beef Productivity, Quality, Safety and trade in central America
 - Allocation of World Bank funds to System Wide and Ecoregional Programs for 2004
 - Summary of Recommendations Concerning System Wide Programs

- Reviewer Critique to the System Wide Livestock Program (SLP)
- 10. List of achievements/outputs: publications (peer-review and other):
 - Abstract of ILRI's Achievements 2000-2006
 - ILRI Achievements Overview 2000-2006
 - ILRI Achievements Appendix 2000-2006
 - ILRI Performance Indicators 2003, 2004 and 2005
 - ILRI Publications 2003, 2004 and 2005
 - ILRI Awards, Honors and Appointments to Staff & Board of Trustees
- 11. A paper prepared by Center management and Board on: a) main issues of current concern, b) vision of clients needs in intermediate (5 years) and long (10 years) term, c) vision on CGIAR and donor status in intermediate and long term; d) state of the relevant science in intermediate and long term; e) plan of action reflecting these vision statements:
 - Knowledge to Action – Strategy and Future Direction of ILRI
- 12. The current organization chart, with a brief description of the Center's internal management structure, including the composition and terms of reference of each major committee
- 13. Toward a New Visions and Strategy for the CGIAR
- 14. New Monitoring and Evaluation System for the CGIAR Centers
- 15. EPMR reports of CGIAR Centers
- 16. The CGIAR Charter
- 17. ILRI Annual Report 2004 – Achieving More with Less; ILRI Annual Reports 1999-2003.
- 18. The latest annual funding request: funding request for 2006.
- 19. List of professional staff with short CVs including standard set of information as instructed by the SC Secretariat (publications, key memberships, invited lectures, prizes/awards; students supervised
- 20. List of reports of major planning conferences, internal reviews, expert meetings, etc. which have had a major influence on the direction of specific Center programs:
 - Planning meetings (9)
 - Annual Planning meeting 2006-10-1
 - Conferences/Workshops (14)
- 21. List of the agreements for cooperative activities with other Centers and institutions
- 22. List of ongoing and recently completed contracted projects for Themes
- 23. Most recent CGIAR financial guidelines and manual:
 - Financial Management
 - CGIAR Accounting Policies and Report Practices Manual
 - Audit Policies
 - Guidelines for Preparing the 2007-2009 Medium-Term Plans and the 2007 Financing Plans
 - CGIAR Indirect Cost Allocation Guidelines
 - CGIAR Procurement of Goods, Works and Services
- 24. Reference Guides for CGIAR International Agricultural Research Centers and their Boards of Trustees
- 25. Charter and other basic documents establishing the Center:
 - Agreement on establishment of ILRI
 - ILRI-Kenya government agreement
 - The constitution of ILRI
 - Host government agreement with Ethiopia
- 26. Table showing composition of the Board over the last five years:
 - Composition of the Board
 - Board of Trustees profiles
- 27. Board handbook and rules of procedure:
 - Rules of governance

- Terms of reference – Human Resources Committee
 - Terms of reference of the Finance and Audit Committee
 - Terms of reference – Program Committee
28. Table showing allowances, benefits, and salary ranges for each category of staff
 29. Table showing personal data on professional staff by program, including job title, incumbent's location, IRS/NRS/LRS status, period of tenure, gender, nationality, age, salary over the last three years, funding source
 30. Table summarizing turnover of staff over the last five years by staff category
 31. List of international staff vacancies and how long positions have been vacant
 32. Set of minutes covering Board and Board committee meetings since the last External Review
 33. Staff Manuals:
 - NRS Personnel Manual
 - Amendment no 1 to NRS Personnel Manual April 2006
 - IRS Personnel Manual
 34. Local compensation survey reports: Nairobi, Addis Ababa
 35. Reports of external auditors, including management letters, and financial officer's reports to the Board since the last external Review
 36. Most recent internal audit reports
 37. Update on the ILRI and ICRAF alignment process
 38. MTP Eastern and Southern Africa
 39. System Wide Livestock Program
 40. Key financial indicators from 1999 to 2005
 41. ILRI 2006 budget allocations to CGIAR System Priorities
 42. ILRI policies and procedures
 43. Biosciences East Africa (BecA)
 44. ILRI-IFPRI joint program on livestock opportunities
 45. Impact assessments:
 - Cow pea impact assessment
 - Maize impact assessment
 - Valuing alternative land use options in Kitengela
 - Evaluating impact of graduate fellowship program
 - The role of broadbed maker plough in the Ethiopian farming systems
 - Genetic enhancement of sorghum and millet residues fed to ruminants
 - Compendium of ILRI research impact and adoption 1975-1998
 - Assessment of priorities to 2010
 - Smallholder dairy technology in coastal Kenya: an adoption and impact study
 46. Responses to ILRI EPMP Panel questions and requests for additional data and documentation (staff productivity figures, partnerships, system collaboration, stopped work, priority setting, global mandate, categorization of projects. Reserves, fundraising, analysis of ILRI's publications since 2000, dissemination of results, capacity strengthening, project proposal success rates, average age and size of fund, planning process for regional cooperation offices, logic in choosing activities, evidence of ILRI outcomes for 2004-2005, scientific advisory committee, ILRI's donors, project evolution, project and donor linkages, collaboration with advanced research institutes)

Annex 5
ILRI'S RESPONSE AND 2006 UPDATE TO THE RECOMMENDATIONS OF THE 1st ILRI EPMR,
AND THE 2nd EPMR PANEL'S OBSERVATIONS

PANEL RECOMMENDATION	ILRI'S RESPONSE	STATUS 2006
MISSION, STRATEGY AND PRIORITIES		
Recommendation 1) Believing that ILRI has identified a potentially powerful concept in building essential areas of science planning and management, the Panel recommends that ILRI define and further develop its 'platforms of essential capacity', including such concepts as core competence in key research areas	Agreed: We appreciate the positive comments on the establishment of platforms of capacity and core competence in priority areas where ILRI has comparative advantage compared to alternative suppliers. ILRI will develop this concept further as part of the strategic and medium-term planning process during 1999 to improve focus, scientific quality and potential for impact.	Core competencies: systems analysis and modeling, land use and ecosystem analysis, ruminant immunology, vaccine development, genomics, bioinformatics, molecular biology, market analysis, pathways in and out of poverty, dairy systems, animal nutrition, and animal genetic resource characterization. Seeking to expand: innovation systems, epidemiology, risk assessment, public health and non-ruminants, especially in a systems context. Have discontinued: ruminant microbiology, physiology of greenhouse gas production in ruminants, range management Indicators <ul style="list-style-type: none"> • ILRI Strategy to 2010 • ILRI – A pathway out of poverty • ILRI Annual MTP
2nd EPMR PANEL COMMENT: On-going; ILRI has reacted to this and is more explicitly mentioning competencies which can be grouped in platforms.		
Recommendation 2) Considering the need to orient livestock research more closely towards the requirements of rapidly changing animal agriculture in developing countries, and the need to define and operationalize ILRI's global mandate more precisely, the Panel recommends that ILRI revisits its vision, strategy, and priorities and redesign its planning processes to position the Institute compellingly at the core of the international animal agriculture research agenda.	Agreed: The assessment and suggestions of the Panel provide valuable input to improving the planning process. Review of ILRI's research agenda and vision, revision of the strategic plan and development of the MTP 2001-2003 are major activities for ILRI in 1999. ILRI has taken steps to strengthen its priority setting and planning processes.	ILRI has refocused its strategy emphasizing how livestock contributes to poverty reduction, and related global public goods, e.g. changing market requirements, new diseases and environmental concerns. This is continuously done by close communication with partners. SC has explicitly recognized the importance of livestock issues in the recent priorities document. ILRI aligns itself with this agenda. Indicators <ul style="list-style-type: none"> • ILRI Strategy to 2010 • ILRI – A pathway out of poverty

<p>2nd EPMR PANEL COMMENT: ILRI has addressed the aspects of this recommendation that refer to strategic planning, but has not yet fully ‘operationalized ILRI’s global mandate’; this EPMR, recognizes that the 1st EPMR recommendation is softened by the appended ‘more precisely’, yet nevertheless observes that ILRI has not positioned itself ‘at the core of the international livestock agenda’ outside East and Central Africa.</p>		
<p>GOVERNANCE, LEADERSHIP AND ORGANIZATIONAL CULTURE</p>		
<p>Recommendation 3) Since policies established by the Board over the years, particularly in the program area, have not been made widely known, the Panel recommends that past policies be retrieved from the records and disseminated in such a way that they are available for reference as needed both by current and newly recruited staff, and that those approved in the future be similarly and promptly made known.</p>	<p>Agreed: Action has been taken to implement this recommendation. A Policy Decisions Document in electronic form (as a key component of the Operations Manual), that is fully searchable by topic and key words, will be accessible through the internal network. New staff will be informed on policies through a summary brochure as part of their orientation kit.</p>	<p>ILRI's intranet ILRINET has become the main repository for all policies. A range of policies have been revised in the recent past and more will be addressed in the near future. Particular effort is on harmonization within the CGIAR and particularly with ICRAF.</p> <p>Indicators</p> <ul style="list-style-type: none"> • Refer to ILRI policies and procedures which are posted on ILRINET
<p>2nd EPMR PANEL COMMENT: This recommendation has been fully addressed. The intent would also include maintaining a physical archive for these documents, similar to the compilation of board minutes, and retained as part of consolidated corporate documentation that allows for easy access to both current and past policies.</p>		
<p>Recommendation 4) Because the line between the responsibilities of Board and Management appears to be inappropriately drawn at ILRI, the Panel recommends that the Board clearly focus on its policy formulation and oversight functions, and establish a sharper distinction between its responsibilities and those of Management.</p>	<p>Partly Agreed: Board and Management agree to the recommendation to review and re-state the principles that define the responsibilities of the Board and Management in the definition and implementation of policy decisions. We are committed to a strong and functional partnership between Board and Management and believe this is reflected clearly in our deliberations and actions. Board-Management relationships were the subject of comprehensive discussion during our retreat in 1997. One basis for deliberation was the article entitled “The New Work of the Nonprofit Board.” The following table from the report illustrates key points.</p>	<p>This has been fully implemented as seen from agenda and minutes of BOT meetings. An authorization table clearly defines division of responsibilities between Board and management. (See attached at end of document).</p> <p>Indicators</p> <ul style="list-style-type: none"> • Report from ILRI Board Retreat in April 2000 to define Board responsibilities. • Authorization matrix.
<p>2nd EPMR PANEL COMMENT: ILRI has fully addressed this recommendation. The balance between board and management roles is also dynamic and enhanced or handicapped by the temperament and style of the chair and DG but practice and policy currently combine to maintain a healthy and appropriate balance.</p>		
<p>INSTITUTIONAL STRUCTURE AND MANAGEMENT</p>		
<p>Recommendation 5) To ensure strong scientific</p>		

leadership and incisive decision-making, the Panel recommends that ILRI modify its organizational structure to include the following elements (see Figure 5.2):		
i) A new office of Deputy Director General (Research) to act in the absence of the Director General, oversee ILRI's research agenda, take a primary role in planning and priority setting exercises, promote inter-program collaboration, and provide independent analysis of the resource needs of research programs. The DDG (Research) would also oversee the Research Support Units.	Agreed: ILRI Management and Board fully concur that the organizational structure should enable strong scientific leadership and decisive decision making. Recruitment for a Deputy Director General responsible for program will be initiated with immediate effect. The terms of reference for the position were discussed and approved by the Board.	Done. J. McDermott- DDG Research since 2003. The DDG-R works very closely with the TDs in program management. (see attached TORS)- David Taylor held the position on secondment from U. of Edinburgh for 3 years. W. Thorpe was an acting research manager during the transition. Indicator <ul style="list-style-type: none">• Position of DDG-Research established.
2nd EPMR PANEL COMMENT: ILRI has implemented this recommendation.		
ii) The current research and research-related agenda consolidated into five programs as follows: Animal Genetics and Genomics; Animal Disease Control; System Science, Impact, and Policy Analysis; Production Systems and Animal Nutrition; and International Co-operation.	Agreed: The concept of a consolidated project and program structure is agreed in principle, although the final configuration may differ from that presented by the Panel depending on the outcome of the strategic planning process in 1999. Options for program and organizational structure will be presented for Board approval in September 1999.	The spirit of this recommendation was implemented in 2002 by creating five interdisciplinary issue rather than discipline driven themes, the rationale for their choice is derived from the 2002 revised strategy Indicator <ul style="list-style-type: none">• New program structure created based on strategy.• See document on ILRI organizational structure.
2nd EPMR PANEL COMMENT: The recommendation was not implemented and ILRI arguments that 'the spirit' is evident in the Themes of the current ILRI structure are not convincing. It seems that the earlier EPMR intended to retain a largely discipline organizational base, which implies a different worldview to the systems approach adopted by ILRI. As the objective of the recommendation was 'to ensure strong scientific leadership and incisive decision-making', the Theme structure is not a clear contribution to the recommendation.		
iii) The programs consisting of projects as at present, though with a different configuration (as proposed in Chapters 6, 7, and 8).	Agreed: Plans for those projects which will be continued, as well as for new initiatives, will be evaluated in the strategic planning process leading to the development of the MTP (2001-2003) as stated above.	The evolution of programs following the 2002 revision of the strategy is reflected in the subsequent MTPs. Indicator <ul style="list-style-type: none">• Annual 3 year rolling MTPs.
2nd EPMR PANEL COMMENT: Ongoing projects were assigned to the new structure. Precise location of projects in the new configuration is difficult to discern.		
iv) One unit -- the office of External Relations --in a staff relationship to the Director General to continue co-ordinating the Institutes fundraising and public	Agreed	This model was implemented till 2003 Lesson learnt: RM needs to be mainstreamed. Presently overall coordination is under Director for Partnerships and

awareness activities.		Communications but themes and operating projects have a major role in development and marketing of proposals. MC has established specific processes for prioritizing and monitoring resource mobilization efforts. Indicator <ul style="list-style-type: none">See document on ILRI organizational structure based on ILRI Strategy.
2nd EPMR PANEL COMMENT: This recommendation has been implemented, although the mainstreaming of resource mobilization—in terms of proposal development, budgeting and grants management is a work in progress.		
v) No change in the responsibilities of the Administration department, which would retain responsibility for finance, human resources management, information technology services, and administration of both Nairobi and Addis campuses.	Agreed	Deeper integration of the admin at both campuses has been achieved. New processes and procedures are supporting this integration. Indicator <ul style="list-style-type: none">Refer to ILRI policies and procedures.
2nd EPMR PANEL COMMENT: In view of the changed environment and the need for specialist expertise, a separate department for HR is being set up.		
BIOSCIENCES		Indicator <ul style="list-style-type: none">For recommendations 6 – 11, these are contained in the ILRI strategy which contains the new program structure.
Recommendation 6) To ensure research quality and productivity by having project co-coordinators and their research teams work together on a daily basis and thereby achieve cross-fertilization of ideas, catalyze critical thinking, and design cutting-edge research and research proposals, the Panel recommends that Project 1 (Characterization, conservation and use of animal genetic resources) and Project 2 (Development of disease resistant livestock) be managed at the Nairobi campus.	Agreed: We share the Panel's view of the importance and value of the animal genetics research, and agree with the recommendation to manage Projects 1 and 2 together. We will manage this research as one Project, under a Project Coordinator based in Nairobi. This action is consistent with the Panel's recommendation to consolidate animal genetics and genomics (Chapter 5).	Both areas presently are under the same Theme Director based in Nairobi. The molecular work on identification of the genetics of disease resistance has been linked with the broader application of genetic characterization of animal genetic diversity. The animal breeding aspects of delivering identified disease resistance traits and optimizing the use of genetic diversity have also been linked together. We are also trying to better link the animal genetics and genomics work with research on vaccine development.
2nd EPMR PANEL COMMENT: ILRI has taken this recommendation one step further and combined activities on characterization & conservation and development of disease resistant livestock in one operating project.		
Recommendation 7) Because the slow pace and past	Agreed: We accept the Panel's recommendation to	Major progress made in this area. Tryps vaccine

<p>unrealistic timescales have led to a lack of credibility in the area of ILRI vaccine research, the Panel recommends that the research on vaccine development (ECF and Trypanosomosis) be critically reviewed with the aim of clearly defining a strategy and program for developing further antigens for the ECF vaccine and evaluating whether a vaccine against trypanosomes is a viable prospect.</p>	<p>define a more strategic approach to antigen development for the ECF vaccine, and will strengthen links with ARIs in areas where ILRI lacks comparative advantage. This approach is also in accordance with the Panel's support for maintaining a critical mass of scientific expertise in biotechnology and knowledge of the parasite genome. We note the Panel's concern about the slow pace of vaccine research. The results from current field trials with the p67 sporozoite vaccine against ECF, and current laboratory trials with congopain to validate its efficacy in reducing the pathogenic effects of trypanosomosis in cattle, will inform critical decisions about future research in these areas, and the possible involvement of the commercial sector in vaccine production.</p>	<p>development stopped after thorough external review. ECF vaccine strategy significantly evolved involving broad partnership with ARIs and private sector. Major progress on antigen identification. Current challenge is to find delivery systems to induce consistent cellular immune responses. We are working closely with ARI and private sector partners on this.</p>
<p>2nd EPMR PANEL COMMENT: The recommendation was fully implemented.</p>		
<p>Recommendation 8) To integrate a systematic global evaluation of forages, crop residues and other feeds with the nutritional evaluation of dietary options to increase animal productivity and net economic returns, the Panel recommends merging Projects 8, 9 and 10 (Feed utilization improvement for improving livestock productivity; Rumen microbiology for feed utilization enhancement; and Characterization and conservation of forage genetic resources) into a cohesive Ruminant Nutrition Management Project.</p>	<p>Agreed: We accept this recommendation and have taken steps to merge the projects. Terms of Reference for a Project Co-ordinator to lead this area have been prepared. We will review which elements of these projects constitute laboratory-based and which constitute field-based ecoregional research. This analysis will guide decisions about which elements are managed within the strategic biological research projects and which are more appropriate to the ecoregional systems projects. The linking of the strategic components to regional applications and utilization will be emphasized to ensure effective delivery of new technologies and products to NARES.</p>	<p>This recommendation was implemented in 2000 by creating the Livestock Feeds and Nutrition Program. As ILRI's strategy was revised in 2002 this recommendation was further implemented by integrating a more focused and coherent research program on feed resources and animal nutrition into Theme 5 and the SLP. Feeds and nutrition research in Theme 5 is conducted under the Operating Projects PL03 (Mitigating feed scarcity) and PL04 (Forage diversity), which aim at delivering options to increase the supply and efficiency of utilization of feeds within a broad context of rural livelihoods. These two projects are closely linked to the SLP, which serves as a mechanism to conduct a global research program on feed resources bringing together the expertise and resources of crop-, natural resource- and policy-oriented centers. The SLP is also a mechanism to disseminate globally the outputs of research on feeding strategies for crop-livestock systems.</p>
<p>2nd EPMR PANEL COMMENT: The recommendation has been implemented and subsequent modification of the organizational structure has probably further</p>		

strengthened part of its intent. However, ILRI's management of the 'global' part of the recommendation by allocating it to the SLP does not meet the 'systematic' intent of the recommendation and raises the question of demonstrable ILRI commitment to its global mandate.

SUSTAINABLE PRODUCTION SYSTEMS PROGRAM

Recommendation 9) To stimulate income growth and food security for farm families, to help alleviate poverty, and to conserve natural resources, the Panel recommends that ILRI strategically orient the production systems research program, and establish an ecoregional or global consortium for market-oriented crop-livestock systems. To accomplish this:

i) Project 19 (Market-oriented smallholder dairy systems) should be broadened beyond dairy to constitute a transregional or global research project that is especially aimed at enhancing economic growth of rural households by developing more profitable and sustainable market-oriented crop-livestock systems.

Partly Agreed: We are increasing emphasis on market-oriented systems which provide for asset building and income generation for resource-poor smallholder farmers. This research on market-oriented systems directly addresses the CGIAR goals of poverty alleviation, building assets, improving livelihoods of rural households and helping to meet the expanding demand for livestock products, especially in urban areas of developing countries.

The market-oriented smallholder dairy project will provide a model for research on other market-oriented crop-livestock systems projects. This project will continue to work on transregional analysis of smallholder dairy systems in selected ecoregions of the world. However, any expansion of the systems covered by project 19 will be critically evaluated because we have concerns that diluting the focus on smallholder dairy will reduce the commended effectiveness of this project.

This has now evolved further. SDP was completed in Kenya, achieved significant outputs and is being scaled out to other African and Asian countries. ILRI has been involved in a number of transregional analyses of livestock systems including dairy that have provided lessons on opportunities and issues for targeting research in smallholder systems. Currently we have developed a much more strategic program in improving market access for the poor in a joint program with IFPRI (Theme 3) focusing on smallholder competitiveness, institutions and other innovations to improve market access and address health and safety issues.

2nd EPMR PANEL COMMENT: This recommendation has been fulfilled. Besides the various scientific awards (e.g. the 2004 CGIAR Communication Award, which was based on this project) and the influence on pro-poor policy formulation in Kenya, ILRI has completed the dairy-systems research work in Kenya and has now started up-scaling of the outcomes in one province in India, in close collaboration with other partners.

ii) Scientific staff in Project 13 (Crop-livestock systems in the highlands of SSA and Asia) be re-assigned, possibly to Project 19, to increase the critical mass of scientists focusing on transregional research objectives and market-oriented systems.

Partly Agreed: The research in Project 13 has substantially changed to integrated natural resource management. This research is strategic in nature, and links natural resources, livestock production, poverty alleviation, human nutrition and health. Methods, experience and results will have transregional

This program has evolved to focus on livestock water issues, which we feel is a crucial research area. Because of lack of resources and a need to focus, we are no longer directly engaged in the global mountain program. Over the next year we plan to better align our livestock-water research with the operating project on

	relevance. This research links African Highlands research with livestock elements of the CIP-convened Global Mountain Program, including research in the Andes and that led by ICIMOD in the Hindu Kush Himalayas.	livestock and the environment.
2nd EPMR PANEL COMMENT: While the very detailed nature of this recommendation is no longer relevant, ILRI comments do not address its intent, and must be read as disagreement with the recommendation. The general issue of critical mass remains, particularly in Asia.		
iii) The expertise of Project 14 (Crop-livestock systems in sub humid SSA and Asia) and Project 15 (Crop-livestock systems in semi-arid zones of SSA and Asia) could be consolidated to form one project having more critical mass to focus on market-oriented systems in the subhumid zone, co-ordinated with Project 19, although not restricted to dairy.	Agreed	In the structural reorganization of ILRI that followed the development of its new strategy, all 5 research Themes have a global orientation. These projects do fit into ILRI's work in market-oriented systems with research falling into Theme 3 looking at how to improve competitiveness and market institutions and in improving feeding strategies in a livestock systems context in Theme 5.
2nd EPMR PANEL COMMENT: While that is ILRI ambition to have market-orientation in all its themes, the restricted funding situation has resulted in down-scaling of activities and lack of visibility. This is true for most parts of developing regions, where livestock production systems play a role in the economies of those countries, especially those in the Sahel zone.		
iv) If Project 16 (Crop-livestock systems in fragile environments in LAC) is to be continued, it should become part of the transregional smallholder livestock systems effort of the re-designed Project 19 with a full-time ILRI staff member.	Partly Agreed: The project has two components, one linked with the CIAT-led Tropileche consortium and the other with the CIP-led CONDESAN. Two ILRI IRS are engaged in these projects through joint appointments with CIAT and CIP. They leverage substantial resources and establish critical mass through partnerships with their host IARCs and NARS. In response to the Panel's concerns, the ILRI contributions to the Tropileche consortium will be integrated with the market-oriented dairy research in Project 19 and ILRI's livestock research in CONDESAN will be integrated with the highlands research in Project 13.	Work with CIP in LAC highlands was discontinued. Work with CIAT focuses on beef value chains in Central America as part of the ILRI livestock market Theme. 2 ILRI IRS and a shared appointment with CIAT are involved in this activity.
2nd EPMR PANEL COMMENT: The objectives have not been fully achieved here, particularly when we consider the discontinuation of the joint work with CIP, which was important for the LAC highlands.		

RESEARCH ON IMPACT ASSESSMENT AND POLICY ANALYSIS		
<p>Recommendation 10) To enable the necessary integration of impact assessment and policy research, better orient the Institute's biophysical and production systems research (and its priorities), and provide a firm base for delivering outputs and generating impact, the Panel recommends that Projects 11 (Systems Analysis and Impact Assessment) and 12 (Policy Analysis) be merged, with all staff operating at ILRI's headquarters in Nairobi.</p>	<p>Partly Agreed: We agree that closer linkages between projects 11 and 12 will strengthen the systems and policy research. However, we do not agree with the merger of these projects and basing all staff in Nairobi. ILRI currently has fifteen internationally recruited economists on staff. Of these, ten are members of interdisciplinary ecoregional teams with dual research responsibilities for microeconomic analysis of constraints to livestock production and marketing as well as contributions to macroeconomic analysis supporting policy research by ILRI, IFPRI and other partners. This link between primary data and policy analysis was cited as a major comparative advantage for ILRI in the 1996 CCER of livestock policy research. Consolidating all staff engaged in policy analysis at headquarters in Kenya would disable the interdisciplinary teams working outside Kenya and lose the benefits from linking micro- and macro-economic research.</p>	<p>This recommendation has been overtaken by developments over the last 6 years. Most of the work referred to in this recommendation is presently under Theme 1 based in Nairobi. Policy research is imbedded in all areas of the institute. Economics expertise is mainly concentrated in themes 1 and 3. A joint program established with IFPRI addresses constraints to market access, particularly as related to animal health and food safety issues.</p>
<p>2nd EPMR PANEL COMMENT: ILRI has not implemented this recommendation. The proposed establishment of a unit in the office of the DDG, which will deal, inter alia, with impact assessment issues is a belated start.</p>		
<p>Recommendation 11) To address concerns regarding ILRI's interpretation of the convenor role in managing systemwide programs of the CGIAR, the Panel recommends that ILRI.</p> <p>i) redefine its role in the System-wide Livestock Program (SLP) to conform with the TAC-recommended function of a system-wide program convener;</p>	<p>Partly Agreed: We welcome TAC guidance on the function of a system-wide program convener. The nature of the convening function varies for different system-wide programs. TAC is currently evaluating the experiences of the inter-Centre programs established since 1994.</p>	<p>ILRI has defined its role as convenor of the SLP at various levels. With respect to governance, ILRI's Board of Trustees assumes overall responsibility for the SLP. As the SLP does not have legal institutional status, ILRI' Director General represents the Program in all its contractual arrangements with donors and partner institutions. Regarding Program management, ILRI's representative to the SLP (the DDG-R) serves as Chair of the inter-center Livestock Program Group (LPG), the Committee that steers the Program. At the implementation level, ILRI provides expertise on livestock issues for multi-center research on crop-</p>

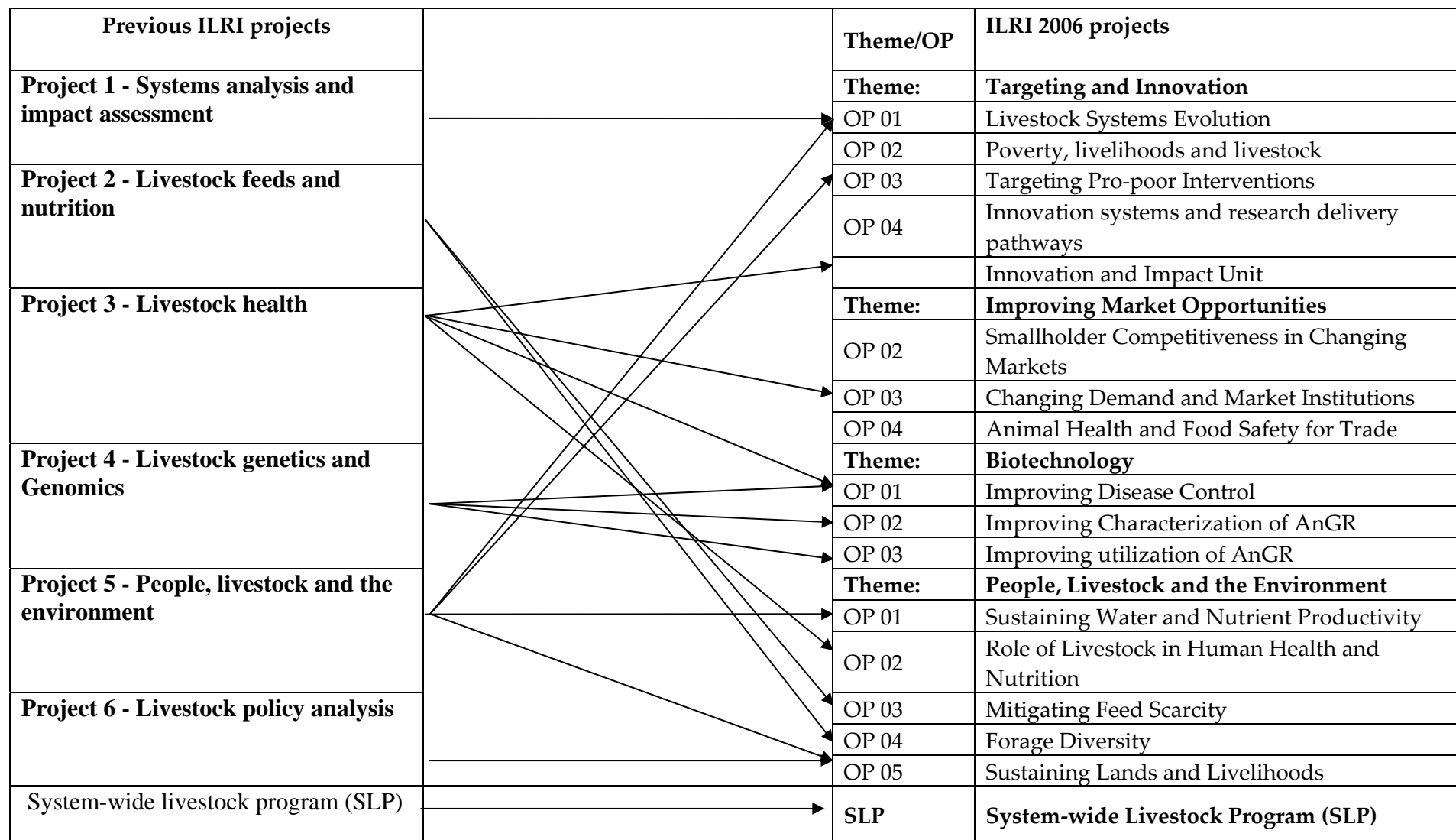
		livestock systems under the SLP hosts the Program Coordination office and provides logistic support for its functioning as required.
2nd EPMR PANEL COMMENT: ILRI has fully implemented this recommendation.		
ii) withdraw those parts of its own research program from the SLP over which the Inter-Centre Livestock Program Group has no jurisdiction, thus enabling the entire portfolio of the Program to be guided by procedures agreed in the SLP; and	Partly Agreed: We agree to the value of consensus support by the Livestock Program Group (LPG) for activities funded directly by the SLP. However, an important objective of the SLP is to build on the core activities of participating Centers. The SLP provides incremental funding to support additional collaborative research on livestock feeds and NRM by Centers and their national partners. This collaboration adds value to the core research done by collaborating Centers, including ILRI. The LPG does not assume jurisdiction over the core activities of any of the collaborating Centers.	All research projects funded by or through the SLP are approved by the LPG as inter-center, systemwide activities. These activities are implemented as part of Themes/Programs and Projects in each of the Centers members of the SLP. Lead Centers are responsible for ensuring quality of science, supervision and reporting to the LPG. The Program Coordinator, who reports to the LPG and executes its agreements, oversees the implementation, monitoring and evaluation of these activities.
2nd EPMR PANEL COMMENT: ILRI has implemented this recommendation notwithstanding apparent concern with it at the time, and the SWPs' wider objective in encouraging inter-centre collaboration been of particular benefit to ILRI as the only livestock centre.		
iii) refrain from reporting the SLP as part of ILRI's research portfolio.	Not Agreed: ILRI follows TAC and CGIAR guidelines for reporting system-wide programs as part of the Institute's portfolio.	Following the guidance from the SC, ILRI submits plans and reports for the SLP as part of the institute's Medium Term Plans and Annual Reports. All centers identify in their plans and reports the activities that are conducted under Systemwide Programs. To maintain its identity as a Systemwide Program and for accountability purposes, the SLP also submits bi-annual technical and financial reports to the CGIAR members and its donors.
2nd EPMR PANEL COMMENT: The recommendation has been superseded by the MTP guidelines.		
CROSS CUTTING ISSUES		
Recommendation 12) To maintain and enhance ILRI's scientific reputation, the Panel recommends that the Institute develop and use explicit mechanisms for ensuring scientific quality and the effectiveness and utility of its outputs.	Agreed: ILRI was pleased with the assessment of our research against the Panel's criteria of good science. The overall quality and output of 88% of ILRI's projects were assessed as good or better. ILRI will improve and strengthen existing mechanisms to	ILRI has established the position of the DDG research, one of his responsibilities is to monitor science quality. Biometrics also reports to the DDG-R. Given the breadth of disciplines involved in ILRI and the related small number of internal peers for each scientists, ILRI

	ensure relevant quality science is brought to bear on priority problems identified with partners and stakeholders, including expanded use of logical frameworks, CCERs, impact assessment, peer review, annual workplans and progress reports with clear milestones, and publication review.	stresses the value of external sources of feedback such as peer reviewed journals and a scientific advisory panel of 5 eminent scientists from scientific fields of strategic importance for ILRI, who continuously engage with the scientists at ILRI and provide feedback to management and board on the quality of ILRI's science. ILRI has strengthened the planning of the science from the institute and theme level to the individual scientist workplans. A staff development program is providing training opportunities for ILRI research staff to upgrade their research skills. Indicators <ul style="list-style-type: none"> • Appointment of DDG-Research. • Peer review articles. • CCERs. • Science Advising Panel.
2nd EPMR PANEL COMMENT: The Panel feels that maintaining quality is a continuous obligation. ILRI has established processes to monitor quality.		
ADMINISTRATION		
Recommendation 13) Because ILRI does not have an adequately defined and transparent system with which to classify internationally recruited staff (IRS), determine salaries, and ensure equity in compensation, the Panel recommends that:		
i) the categories of scientist, program specialist, and administrator be expanded to differentiate positions with differing levels of responsibility, authority, knowledge, and skills; ii) a salary range for each IRS level be developed and applied in all cases; iii) where in infrequent instances, market values to particular skills necessitate payment of a salary higher than that of equivalent positions, a market supplement be given to attract and retain suitable candidates; and iv) information on the policies and procedures of the	Agreed: Categories for IRS will be expanded to differentiate positions with differing levels of responsibility, authority, knowledge and skills with a salary range for each category. We acknowledge the Panel's recommendation that market supplements could be used to attract and retain suitable candidates. The Personnel Policy and Procedures Manuals are given to all IRS and placed on the Local Area Networks in principal sites. ILRI agrees with the principle of equal pay for equal work. We will reassess compensation practices taking in account the	This has been addressed by the IRS job classification and compensation study undertaken by Hewitt Associates. ILRI engaged Hewitt Associates to develop a classification scheme for IRS positions at ILRI. This system was later adopted by the CGIAR for a system-wide compensation study Each band has a range which allows management to deal with differences between markets for different disciplines and skill sets. IRS classification and compensation framework was presented to and discussed with staff. It is used when slotting new

classification and compensation system is provided to all IRS staff.	requirements of local, regional and international markets and develop pay levels accordingly.	positions into our salary scale. Indicator <ul style="list-style-type: none"> ILRI staff classification system. Policies and procedures on ILRINET.
2nd EPMR PANEL COMMENT: i) This recommendation has been addressed by the Hewitt study and adoption by the management. ii) This has been done as part of the Hewitt study implementation. iii) The management has the discretion within a salary range to decide appropriate pay. iv) The recommendation has been implemented.		
Recommendation 14) To ensure implementation of the proposed restructuring and integration of ILRI's research program, and to utilize cost effectively the valuable research infrastructure, the Panel recommends the following action plan for achieving proper utilization of ILRI's facilities in Ethiopia.		
i) in close consultation with the Government of Ethiopia, ILRI redoubles its efforts to accommodate international agricultural research- and training-oriented programs on its Ethiopian premises; the conditions of such accommodation, which may also include technical and administrative support, are to be guided by the ILRI-GoE host country agreement and to be based on full cost-recovery;	Agreed: ILRI Board and Management are committed to the most cost effective and best programmatic use of research infrastructure at all sites. We believe the infrastructure in Ethiopia is a valuable resource for the CGIAR system, especially for activities oriented to sub-Saharan Africa, as well as for ILRI.	Fully implemented - CCER conducted in early 2002. ILRI actively sought to maximize value of this infrastructure for the CGIAR's mandate in Africa. By 2006, 8 centers have a total of 70 staff including 31 IRS positions operating on the campus. Emphasis presently is on strengthening the programmatic cooperation between hosted centers and particularly with ILRI. Indicator <ul style="list-style-type: none"> ILRI CCER Report. Presence of 7 CG Centers on Campus with more than 40 professional staff.
2nd EPMR PANEL COMMENT: The recommendation, insofar as it dealt with the implications of the ILRAD-ILCA merger, has been implemented.		
ii) with respect to its own Ethiopia-based research program, ILRI emphasize strategic research aspects, with international scope, in the context of restructuring ILRI's research program, as recommended in the program- related Chapters of this report;	ILRI will increase efforts to ensure best use is made of these facilities by CGIAR Centers and others on a full cost recovery basis, guided by terms of the host country agreement. ILRI's forthcoming strategic planning exercise will specifically address the Panel's recommendations for ILRI's research activities in Ethiopia.	Building on the IFPRI/ISNAR presence on the Addis campus our Innovation systems theme is mainly based there and creating an inter-institutional hub also involving UNU Innotech. Leadership of theme 5 is based in Addis and many of their strategic efforts e.g. livestock-water relations, feeding strategies and forage gremplasm management are housed on the Addis campus.

		Indicator <ul style="list-style-type: none"> • 2 ILRI global Themes based in Addis Ababa. • 1 SWP – SLP based in Addis Ababa. • ILRI Information Management and CasT program based in Addis Ababa.
2nd EPMR PANEL COMMENT: The Panel considers that ILRI has addressed the intent of the recommendation.		
iii) by the end of the year 2001 an external evaluation will establish progress in implementing this recommendation and propose further steps needed.	An external evaluation will be convened before the end of the year 2001.	Done in early 2002. See respective CCER Indicator <ul style="list-style-type: none"> • ILRI CCER Report.
2nd EPMR PANEL COMMENT: ILRI has implemented this recommendation.		

Annex 6
ILRI'S CURRENT 2006 PROJECTS –EVOLUTION FROM PREVIOUS PROJECTS



Annex 7

ILRI'S ACTIVITIES IN ASIA

Project	South Asia					South East Asia						North Asia		
	Bangla desh	India	Nepal	Pakist an	Sri Lanka	Camb odia	Indon esia	Laos	Philip pines	Thai land	Vietna m	China	Korea	Mongo lia
Theme : Targeting														
Genetic enhancement of sorghum and millet residues fed to ruminants. An ex ante assessment of returns to research.		C												
Transregional analysis of crop-livestock systems	C	C	C	C	C					C				
Pathways out of Poverty and the role of Livestock		O												
A framework for ex-ante impact assessment of feed resource options to promote sustainable livelihoods of resource-poor smallholders (Also SSA)	O	O	O	O	O									
PRIMAS-EXTRAPOLATE: a prototype policy screening - technology targeting tool for livestock keepers in the tropics		O												
Scenarios of alternative futures for livestock sector development to 2030	O	O	O	O	O	O	O	O	O	O	O			
Conservation agriculture, livestock and livelihood strategies in the Indo-Gangetic Plains of South Asia: synergies and trade offs		O												
Identifying feed deficits, their drivers and options for the development of sustainable livestock-based production systems in the tropics		P												
Improving livelihoods through smallholder pig production in North East India building on CASREN and Vietnam and China research		P												
Theme : Innovation														
Development of a dairy toolbox		C												
Enhancing livelihoods of poor livestock-keepers through increasing use of fodder Phase 1 (Ph. 2 proposal under consideration by donor)		O												
Livestock Research Networking in SE and S Asia	O	O	O	O	O	O	O	O	O	O	O			
Theme : Markets														
Scale factors and small holder competitiveness (Also Kenya)	C	C							C					
Balancing the need for safe livestock products with fair market access for the poor (Also Ethiopia, Kenya, Namibia, S. Africa)									C		C			
Understanding the Dynamics of the Traditional Milk Market and Identifying Partnerships and Interventions for Improving the Sector		O												
Comprehensive Study of the Dairy Sector of Assam		O												
Contract Farming for Equitable Market-Oriented Smallholder Swine Production in Northern Vietnam											O			
Contract Farming in Milk and Poultry in India		O												
Improving the pig and pig meat marketing chain to enable small producers to serve consumer needs in Vietnam and Cambodia						O					O			
Consumer demand for animal products with a focus on quality, and contract farming in poultry and dairy in Bangladesh	O													
Capacity development in epidemiology and economics		O												
Successful Smallholder Pig Producers in an Adjusting Vietnam Market											P			
Managing the risks of avian influenza							P				P			
Transmission and control of avian flu in Indonesia (one component of a broader WB, GOI project)							P			P	P			
Support to assessing field activities for avian influenza control (ILRI to provide epidemiology expertise)							P							
Participatory epidemiology and avian flu surveillance and control							P							
Conservation agriculture, livestock and livelihood strategies in the Indo-Gangetic Plains of South Asia: synergies and trade offs		O												
Reducing rural poverty by supporting the commercialization of India's small-scale dairy producers: improved market chains to deliver better feeds and increase milk sales.		P												
Improving livelihoods through smallholder pig production in North East India building on CASREN and Vietnam and China research		P												
Sustainable farming systems for livelihood improvement in North Eastern India		P												
Sustainable Livelihood Improvement through Need-based Farming Systems in Disadvantaged Districts of Bihar		P												
Theme : Biotechnology														
Sustainable endo-parasite control in small ruminants									C	C				
Participatory approaches in sustainable parasite control						C	C	C	C					
Sustainable land use & rural dev. in mountainous regions of SE Asia: (i) Assess pig farmer breed & trait preferences for definition of breeding goals; (ii) identify & assess principal policy & market factors determining trends in the utilization of indigenous pig breeds.											C			
Development and Application of Decision-support Tools to Conserve and Sustainably Use Genetic Diversity in Indigenous Livestock and Wild Relatives	P			P	P						P			
Exchange, sustainable use and conservation of farm animal genetic resources (Case studies in India and Ethiopia; application Global)		C												

Project	South Asia					South East Asia						North Asia		
	Bangla desh	India	Nepal	Pakist an	Sri Lanka	Camb odia	Indon esia	Laos	Philip pines	Thai land	Vietna m	China	Korea	Mongo lia
Molecular characterization of Bactrian camel and yak genetic diversity			C	C								C		C
Capacity Building for Sustainable Use of Animal Genetic Resources in Developing countries	O	O	O	O	O	O	O	O	O	O	O			
Characterization of polymorphism at Y chromosome of sheep												O		
Polymorphism at candidate disease resistance genes in poultry												O		
Development of Domestic Animal Genetic Resource Information System for China												O		
Genetic characterization of small ruminants of Asia	O			O	O		O				O	O		
Molecular characterization of the genetic diversity of the chicken major histocompatibility complex (MHC B complex) (also in Kenya)												O		
Genetic diversity of small ruminant genetic resources (Also in Kenya)												O		
Linking DAD-CN and DAGRIS livestock information system (also in Kenya)												O		
Domestic Animal Genetic Information System (DAGRIS)	O			O	O						O			
Phenotypic and genotypic characterization of <i>Medicago</i> germplasm using AFLPs and microsatellites (also in Kenya)												O		
Theme : People, Livestock and the Environment														
Genetic enhancement of dual purpose sorghum and pearl millet		C												
Marker assisted selection for stover quality		C												
Scoping study of Crop-Livestock Interactions on the Indo-Gangetic Plains		C												
Improving water productivity of smallholder crop-livestock mixed systems in the semi-arid tropics (also in Ethiopia, Kenya, S. Africa, Zimbabwe)		C												
Multidimensional Crop Improvement of the Fodder Value of Rice Straw for Ruminants (also Ivory Coast, Senegal)		O							O					
Groundnut disease management in the Deccan Plateau		O												
Ensuring Health and Food Safety from rapidly expanding Wastewater Irrigation in S Asia		O		O										
Improving the use of pearl millet as livestock feed		O												
Virtual Academy of the Semi-Arid Tropics (also W. Africa)		O												
Pigeonpea in LAC, SSA and Asia (also Nigeria)		P										P		
Marker assisted genetic improvement of sorghum and pearl millet forages		P												
Combating Desertification and Drought: the Agriculture-Environment Nexus		P		P										
Improving Water Productivity of Crop-Livestock Systems in the Indo-Gangetic River Basin		P												
Forage genetic resources: <i>Medicago</i>												P		
Multidimensional crop improvement of the fodder value of rice straw		P										P		
Phenotypic and genotypic characterization of <i>Medicago</i> germplasm using AFLPs and microsatellites														
Conservation agriculture, livestock and livelihood strategies in the Indo-Gangetic Plains of South Asia: synergies and trade offs		O												
Identifying feed deficits, their drivers and options for the development of sustainable livestock-based production systems in the tropics		P												
Reducing rural poverty by supporting the commercialization of India's small-scale dairy producers: improved market chains to deliver better feeds and increase milk sales		P												
Improving livelihoods through smallholder pig production in North East India building on CASREN and Vietnam and China research		P												
Sustainable farming systems for livelihood improvement in North Eastern India		P												
Sustainable Livelihood Improvement through Need-based Farming Systems in Disadvantaged Districts of Bihar		P												
Cross-theme														
Improvement of livestock production in crop-animal systems in agro-ecological zones of South Asia	C	C	C	C	C									
Improvement of livestock production in crop-animal systems in rainfed agro-ecological zones of South-East Asia.						C	C	C	C	C	C			
Sri Lanka Dairy Sector Appraisal					C									
Smallholder dairy in the mixed farming systems of Hindu-Kush Himalayas		C												
Increasing Productivity of Crop-Livestock Systems in Asia (RETA 5812)							C		C	C	C	C		
Improving Crop-Livestock Production Systems in Rainfed Areas of South East Asia (RETA 6005)							C		C	C	C	C		
A symposium on contribution of livestock to mountain livelihoods- research and development issues	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Enhancing Sweetpotato-pig Systems for Poverty Alleviation in Asia		C									C			
Sustainable food-feed systems to improve livelihoods among the poor in the rainfed lowlands: a socio-economic analysis of rice-farming households' integrated crop-animal systems						C	C		C	C	C			
Sustainable food-feed systems to improve livelihoods among the poor in the rainfed lowlands: a socio-economic analysis of rice-farming households' integrated crop-animal systems								C						

Annex 8
ILRI/BECA ORGANIZATION/RELATIONSHIPS CHART

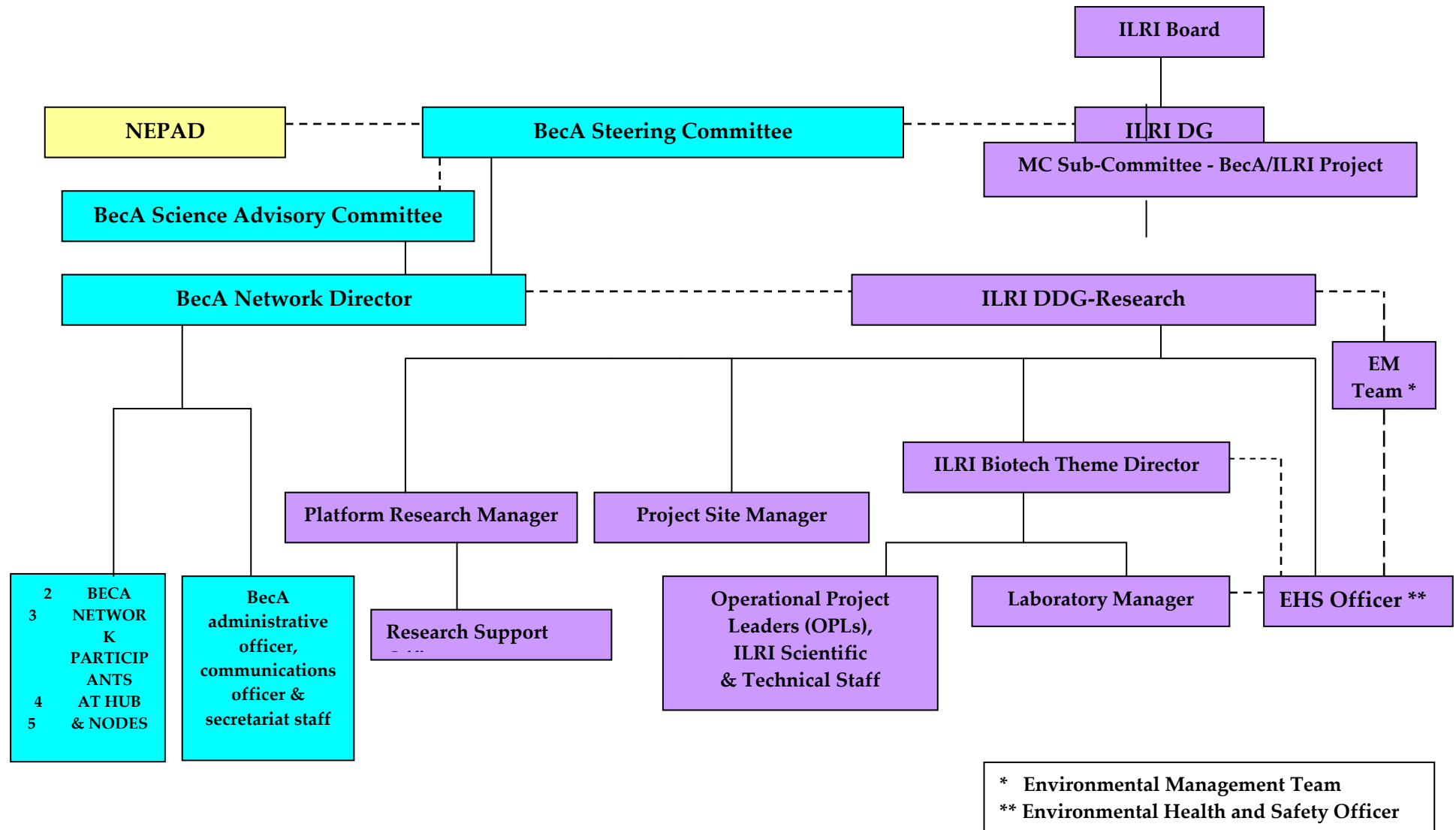
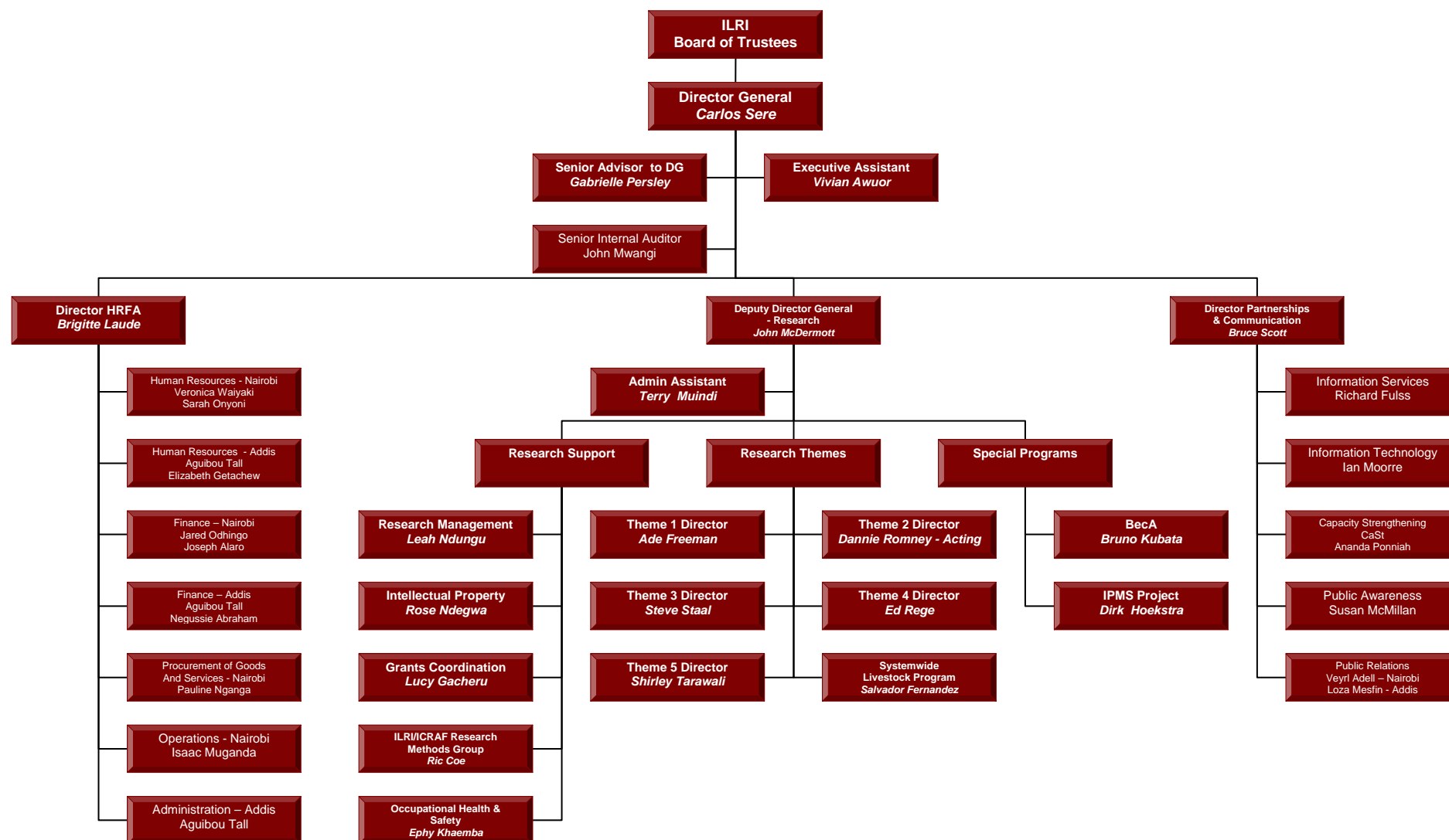


TABLE 1 – BECA IMPLEMENTATION PHASE FORECAST

	2006	2007	2008	2009	Total US\$
Governance, Management & Scientific Support					
<i>Coordination & Management</i>	619,250	928,125	1,009,825	253,700	2,810,900
<i>Monitoring & Evaluation</i>	45,000	60,600	48,100	12,800	166,500
<i>Public Awareness ,Business Dev.</i>	57,000	89,750	152,750	9,000	308,500
Total Governance and Management	721,250	1,078,475	1,210,675	275,500	3,285,900
Facilities Construction	3,050,000	3,650,000	1,015,000	0	7,715,000
Total Facilities	3,050,000	3,650,000	1,015,000	-	7,715,000
Design and Specialist Consultants Fees	708,500	165,000	122,000	-	995,500
Total Design	708,500	165,000	122,000	-	995,500
Equipment	1,612,000	1,240,000	275,000	-	3,127,000
Total Equipment	1,612,000	1,240,000	275,000	-	3,127,000
Building /Strengthening the Research capacity	-	-			
<i>Training Fund</i>	110,000	280,000	250,000	-	640,000
<i>Competitive Grants for research</i>	165,000	375,000	390,000	-	930,000
<i>Research Grants for Young Women Scientists</i>	195,000	280,000	300,000	-	775,000
Total Building Capacity	470,000	935,000	940,000	-	2,345,000
Research Support & Node Development	265,000	500,000	245,000	-	1,010,000
Total Support & Node Development	265,000	500,000	245,000	-	1,010,000
Contingency	-	-			-
TOTAL	6,826,750	7,568,475	3,807,675	275,500	18,478,400
ILRI Management Fee (@5%)	341,338	378,424	190,384	13,775	923,920
Nepad Regional Network Activities	1,060,000	1,058,650			2,118,650
GRAND TOTAL	8,228,088	9,005,549	3,998,059	289,275	21,520,970

Annex 9

ILRI'S ORGANIZATIONAL CHART



Annex 10
TABLE 1 – ILRI FINANCIAL STATEMENTS SINCE 1999 (US\$ '000)

	1994-ILCA	1994-ILRAD	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
From : ILRI STATEMENT OF FINANCIAL POSITION	-	-												-
ASSETS	-	-												-
Cash and cash equivalents	13,584	3,883	17,467	15,987	14,665	11,507	12,363	16,185	10,349	5,270	6,264	16,713	24,620	23,493
Accounts receivable	1,027	1,486	2,513	4,054	2,846	6,461	6,001	5,043	6,548	7,851	7,797	8,910	7,295	7,730
Inventories	834	466	1,300	1,344	1,215	1,205	1,216	1,367	1,378	1,224	957	821	740	650
Prepaid Expenses	172		172	419	338	426	485	464	235	302	289	231	281	404
Other current assets			-							2,482	3,545			
Total current assets	15,617	5,835	21,452	21,804	19,064	19,599	20,065	23,059	18,510	17,129	18,852	26,675	32,936	32,277
Property and equipment - net	9,062	9,318	18,380	18,906	19,952	19,459	18,550	18,081	17,303	16,272	14,923	13,628	12,154	11,516
Intangible assets - net			-					116	361	203	141	51	43	26
Investment in subsidiary		1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816	1,816
Total non-current assets	9,062	11,134	20,196	20,722	21,768	21,275	20,366	20,013	19,480	18,291	16,880	15,495	14,013	13,358
TOTAL ASSETS	24,679	16,969	41,648	42,526	40,832	40,874	40,431	43,072	37,990	35,420	35,732	42,170	46,949	45,635
Accounts Payable	4,620	1,298	5,918	7,650	6,002	6,398	8,294	8,242	5,172	5,107	6,376	12,774	14,026	11,105
Accruals	2,333		2,333	1,750	1,628	1,838	1,892	2,621	2,229	1,695	1,430	1,682	1,905	1,793
Funds in trust	326		326	264	195	306	315	356	339	369	367			
Total current liabilities	7,279	1,298	8,577	9,664	7,825	8,542	10,501	11,219	7,740	7,171	8,173	14,456	15,931	12,898
Accounts Payable- Employees								520	501	560	569	618	696	634
Total non-current assets	-	-	-	-	-	-	-	520	501	560	569	618	696	634
Unrestricted Net Assets			-											
- Capital invested in fixed assets and subsidiary	9,053	11,134	20,187	20,721	21,768	21,275	20,366							
- Operating funds	5,835	4,537	10,372	7,039	7,042	6,245	3,963							
- Capital replacement fund	2,512		2,512	5,102	4,197	4,812	5,601							
- Designated			-					20,013	20,013	18,835	17,443	16,079	14,599	13,940
- Undesignated			-					11,320	9,736	8,854	9,547	11,017	15,723	18,163
Total Net Assets	17,400	15,671	33,071	32,862	33,007	32,332	29,930	31,333	29,749	27,689	26,990	27,096	30,322	32,103
TOTAL ASSETS	24,679	16,969	41,648	42,526	40,832	40,874	40,431	43,072	37,990	35,420	35,732	42,170	46,949	45,635
From : ILRI STATEMENT OF ACTIVITIES	-	-												-
Unrestricted grants	10,890	9,152	20,042	19,643	18,734	15,900	13,343	13,869	11,443	11,128	12,419	12,726	15,111	14,822
Restricted grants and Program funds	3,184	1,540	4,724	4,203	6,041	9,047	10,725	12,649	11,873	13,627	14,153	15,949	17,753	17,006
Total Grant Revenue	14,074	10,692	24,766	23,846	24,775	24,947	24,068	26,518	23,316	24,755	26,572	28,675	32,864	31,828
Other revenue and gains	815	508	1,323	1,198	1,337	1,098	1,249	1,453	1,783	1,593	1,578	2,127	2,073	2,509
TOTAL REVENUE AND GAINS	14,889	11,200	26,089	25,044	26,112	26,045	25,317	27,971	25,099	26,348	28,150	30,802	34,937	34,337
Program related expenses	8,179	8,204	16,383	16,696	17,392	18,825	20,038	20,401	20,455	22,058	22,020	22,721	24,643	25,494
Management and general expenses	3,457	3,574	7,031	8,544	8,575	7,895	7,681	6,091	6,450	6,980	7,957	8,866	8,113	7,618
Other expenses and losses			-					203	189	62	39	34	39	371
<i>Expenditure before indirect cost recovery</i>	<i>11,636</i>	<i>11,778</i>	<i>23,414</i>	<i>25,240</i>	<i>25,967</i>	<i>26,720</i>	<i>27,719</i>	<i>26,695</i>	<i>27,094</i>	<i>29,100</i>	<i>30,016</i>	<i>31,621</i>	<i>32,795</i>	<i>33,483</i>
Indirect cost recovery								(127)	(411)	(692)	(1,167)	(925)	(1,084)	(1,211)
TOTAL EXPENSES AND LOSSES	11,636	11,778	23,414	25,240	25,967	26,720	27,719	26,568	26,683	28,408	28,849	30,696	31,711	32,272
Prior-year adjustment														(284)
(DECREASE)/INCREASE IN NET ASSETS	3,253	(578)	2,675	(196)	145	(675)	(2,402)	1,403	(1,584)	(2,060)	(699)	106	3,226	1,781
Check against variation in net assets			16,383		145	(675)	(2,402)	1,403	(1,584)	(2,060)	(699)	106	3,226	1,781
CGIAR indicator on short-term solvency			220	191	174	164	136	176	159	138	147	157	216	231
CGIAR indicator on long-term financial stability			220	191	174	164	136	180	163	141	151	155	209	233
CGIAR indicator on efficiency of operations			n/a	n/a	n/a	n/a	n/a	n/a	n/a	25%	24%	26%	20%	17%
CGIAR indicator on cash management on restricted operations			28%	129%	89%	250%	151%	67%	254%	242%	156%	75%	52%	77%

Annex 10

TABLE 2 – ILRI RESERVES PROJECTIONS

Budget 2006-08	PROJECTIONS OF NET ASSETS LEVEL	2005	2006 original	2006 revised	2007	2008
Theme	Operating budget					
T1 Total	Unrestricted Funding		14,000	13,100	15,000	16,000
T2 Total	Program income		1,500	2,045	1,700	1,900
T3 Total	Restricted Revenue		22,900	21,680	21,775	16,692
T4 Total	Overhead income		764	806	656	650
T5 Total	Interest income and other center income sources		1,690	1,740	1,800	1,870
	Total Revenue		40,854	39,371	40,931	37,113
RS Total	Restricted Expenditures		22,900	21,680	21,775	16,692
DG Total	Unrestricted Expenditures		21,749	21,749	20,114	19,013
DP Total	Adjustment on Expenditures		980	1,022	980	980
	Total Expenditures		45,629	44,451	42,869	36,685
	Variation in Net Assets		- 4,776	- 5,080	- 1,938	427
	Variation as a % of the expenditure budget		-10%	-11%	-5%	1%
Theme	Capital budget					
T1 Total	Facilities		3,440	2,775	1,200	250
T2 Total	Vehicles		365	443	100	100
T3 Total	Research Equipment		250	295	250	200
	Information Technology and software		739	876	720	214
	Other		565	550	210	165
	Total Capital budget		5,359	4,939	2,480	929
	Depreciation		1,935	1,905	2,137	2,040
	Long term assets at the end of the period	11,542	14,966	14,576	14,919	13,808
	Undesignated reserves	18,163	9,963	10,048	7,767	9,305
	Designated reserves	13,940	17,364	16,974	17,317	16,206
	Total Net Assets	32,103	27,327	27,023	25,085	25,512
	World Bank indicator on long-term stability (# days)	224	103	107	91	123

Note: The table is being revised but the cost and revenue trends would remain the same.

Annex 10
TABLE 3 – EXPENDITURE ANALYSIS

	2004				2005			
	Ethiopia	Nairobi	Other	Total	Ethiopia*	Nairobi *	Other *	Total
Theme /Units								
T1		1,942	0	1,942	-	2,706	-	2,706
T2	847	2,502	267	3,616	315	2,922	-	3,237
T3	545	1,463	634	2,641	1,001	1,245	902	3,148
T4	370	6,280	270	6,921	-	5,962	-	5,962
T5	1,611	1,387	0	2,998	1,857	1,815	434	4,107
Research Support	652	1,505	1	2,158	219	1,846	457	2,522
Other program								
- SLP	733			733	593	-	-	593
- BecA		1,522	0	1,522	-	2,024	-	2,024
- IPMS	370			370	1,405	-	-	1,405
Other Collaborators		644	0	644	-	64	-	64
Sub-total	5,129	17,245	1,172	23,545	5,391	18,583	1,794	25,768
Institutional Management								
- Directorate	96	1,577	0	1,672	79	672	-	751
- Partnership and communication	684	1,551	0	2,236	433	1,581	-	2,013
- HFRA	510	3,147	0	3,656	641	2,653	-	3,294
Sub-total	1,290	6,274	0	7,564	1,153	4,906	-	6,058
Depreciation	750	936	0	1,686	613	1,044	-	1,657
								-
Total	7,169	24,455	1,172	32,795	7,156	24,533	1,794	33,483
	21.9%	74.6%	3.6%	100.0%	21.4%	73.3%	5.4%	100.0%

* Expenses shown under "Institutional Management" and in the "Other" column actually take place in Ethiopia, Nairobi or others. Expenses shown for the Themes indicate the locale of the management of the project. On average, more than 1/3 of those expenses are made outside of Kenya or Ethiopia.

** The total per theme differs from the table given for 2002-2008 because depreciation is shown as a separate item in this table.

Annex 10

TABLE 4 - YEARLY EXPENSES BY LOCATION 2001-2005, US\$

	2001	%	2002	%	2003	%	2004	%	2005	%
Sub Sahara Africa	23,352,495	82%	24,084,812	83%	23,805,286	79%	25,152,256	79%	25,197,096	78%
- Kenya	13,974,682.01		15,575,095.57		17,443,081.86		16,657,150.58		18,370,045.02	
- Ethiopia	7,896,346.50		6,542,039.43		5,616,410.85		6,882,598.87		5,678,717.46	
- Niamey	534,984.13		374,089.86		150,660.62		285,538.39		240,233.40	
- Nigeria	630,033.54		1,300,055.40		490,901.14		1,219,295.80		879,849.69	
- DRC	228,078.08		166,405.77		-		-		-	
- Burkina Faso	88,370.43		127,125.97		104,231.98		107,672.60		28,250.58	
ASIA	3,665,420.98	13%	2,703,878.96	9%	4,167,213.49	14%	4,347,805.95	14%	4,393,561.46	14%
LAC	1,054,715.87	4%	1,413,937.78	5%	1,493,920.60	5%	1,624,559.73	5%	2,120,074.92	7%
WANA	335,371.30	1%	646,371.27	2%	748,580.25	2%	586,378.07	2%	561,268.47	2%
Total	28,408,003	100%	28,849,000	100%	30,215,001	100%	31,711,000	100%	32,272,001	100%

Annex 11 ACRONYMS

A-AARNET	ASARECA Animal Agricultural Research Network
ACIAR	Australian Centre for International Agricultural Research
ADB	Asian Development Bank
ALIVE	African Livestock
APAARI	Asia Pacific Association of Agricultural Research Institutions
APHCA	Animal Production and Health Commission for Asia and the Pacific
ARD	Agricultural Research for Development
ARI	Advanced Research Institute
ARN	Advanced Research Network
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BecA	Biosciences eastern and central Africa
CAAS	Chinese Academy of Agricultural Science
CAC	Central Asia and Caucasus
CASREN	Crop-Animal Systems Research Network
CaSt	Capacity Strengthening program
CBPP	Contagious Bovine Pleuropneumonia
CCER	Center Commissioned External Review
CFC	Common Fund for Commodities
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIDA	Canadian International Development Agency
CILSS	Comite Permanent Inter-Etats de Lutte contre la Secheresse dan le Sahel
CIP	International potato Center
CIRAD	La recherche agronomique au service des pays du Sud
CIRDES	Centre international de Recherche-Développement sur l'élevage en zone subhumide
CORAF	West and Central African Council for Agricultural Research and Development
CP	Challenge Program
CPI	Consumer Price Index
CSIRO	Commonwealth Scientific and Industrial Research Organization
DAD-IS	Domestic Animal Diversity Information. System
DAGRIS	Domestic Animal Genetic Resources Information System
DANIDA	Danish International Development Agency
DDG	Deputy Director General
DFID	Department for International Development
DG	Director General
DMP	Desert Margins Program
ECF	East Coast Fever
ELISA	Enzyme-Linked ImmunoSorbent Assay
EPMR	External Program and Management Review
ETH	Eidgenössische Technische Hochschule
EU	European Union
EXTRAPOLATE	ex-ante tool for ranking policy alternatives
FAnGR	Farm Animal Genetic Resources
FAO	Food and Agriculture Organization of the United Nations
FARA	Forum for Agricultural Research in Africa
GA	Gender Analysis

GPG	Global Public Goods
GEF	Global Environmental Fund
GIS	Geographical Information Systems
HIV	human immunodeficiency virus
HR	Human Resource
IA	Internal Audit
IARC	International Agricultural Research Center
IBAR	Interafrican Bureau for Animal Resources
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Research on Dry Areas
ICRAF	World Agroforestry Center
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IICA	Inter-American Institute for Cooperation on Agriculture
IITA	International Institute for Tropical Agriculture
INRM	Integrated Natural Resource Management
IPG	International Public Goods
IPMS	Improving Productivity and Market Success of Ethiopian Farmers
IPR	Intellectual Property Rights
IT	information technology
ITC	International Trypanosomosis Centre
ILCA	International Livestock Center for Africa
ILRAD	International Laboratory for Research on Animal Diseases
ILRI	International Livestock Research Institute
INREA	Instute National du Recherche Agronomique
INRM	Integrated Natural Resource Management
IPMS	Improving Productivity and Market Success of Ethiopian Farmers
IRRI	International Rice Research Institute
IRS	Internationally Recruited Staff
ISI	International Statistical Institute
ISRA	Institut Sénégalais de Recherche Agronomique
IWMI	International Water Management Institute
KARI	Kenya Agricultural Research Institute
LAC	Latin America and Caribbean
LEAD	Livestock, Environment And Development Initiative
MTP	Medium-Term Plan
NARS	National Agricultural Research Systems
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental Organization
NRM	Natural Resource Management
NRS	Nationally Recruited Staff
OAU	Organization of African Unity
ODI	Overseas Development Institute
OECD	Organization for Economic Co-operation and Development
OP	Operating Project
PANVAC	Pan-African Veterinary Vaccine Centre
PGRFA	Plant Genetic Resources for Food and Agriculture
PNAS	Proceedings of the National Academy of Science
PPLPI	Pro-poor Livestock Policy Initiative

PR	Participatory Research
PRIMAS	poverty reduction intervention mapping in agricultural systems
QTL	Quantitative Trait Loci
R&D	Research and Development
RMG	Research and Management Group
SADC/FANR	Southern African Development Community/ Food, Agriculture and Natural Resources
SEA	South-East Asia
SC	Science Council
SGRP	Systemwide Genetic Resources Program
SLP	Systemwide Livestock Program
SP	System Priority
SRO	Sub-Regional Organization
SSA	sub-Saharan Africa
SWP	Systemwide Program
TAC	Technical Advisory Committee
UNU	United Nations University
USDA	United States Department of Agriculture
VSF	Veterinaires Sans Frontiers
WANA	West Asia North Africa region



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