

Strengthening the role of universities in the national agricultural research systems (NARS)
in sub-Saharan Africa

A. SUMMARY

Universities in many developing countries have mandates and resources for research and they can make significant contributions to agricultural and economic development. Yet university resources are rarely fully utilized for development-oriented research. The study ‘**Strengthening the Role of Universities in the National Agricultural Research Systems (NARS) in Sub-Saharan Africa**’ was designed to help universities improve their research performance and to optimize their collaboration with other components of their national agricultural research system.

The **first phase** of the study (1994-5) involved case studies in Benin and Nigeria. The **second phase** (1996-8) involved implementing and monitoring action plans in these two countries and conducting additional country case studies and action plans in Burkina Faso, Cote d’Ivoire, Uganda, and Zimbabwe. These six countries were selected to represent NARS of different sizes, historical backgrounds, and research and linkage performance. Action plans in these countries include policy changes at different institutions and institutional levels, i.e. Ministry of Agriculture, Ministry of Education, universities (faculties and departments), NAROs, extension services, and Apex bodies, and are related to the internal structure and organization of universities, their external relationships with other institutions, as well as the resource allocation, incentive systems and planning, monitoring and evaluation system of the NARS. Guidelines and approaches relevant to other countries are being developed as part of the study.

The **objectives** of the study were:

- To develop a methodology to analyze the context in which universities and other NARS component institutions are evolving and to identify constraints that limit their contributions to national agricultural research.
- To identify opportunities and innovative mechanisms to improve the contribution of universities to development-oriented research in agriculture.
- To initiate action plans to improve cooperation between universities and other components of NARS in selected countries.
- To derive generic lessons as how to enhance the contribution made by universities to NARS.
- To develop procedures to allow other countries to study and improve university contributions to NARS.

Three major **activities** were performed to achieve these objectives:

- A methodology was developed based on a literature review, a conceptual framework, the procedures and fieldwork approach, testing the procedures and approaches in two country studies, redefining the procedures and approaches and testing them in four additional country studies.
- Six country case studies were conducted resulting in specific country recommendations and action plans and the opportunity to implement selected actions. Related activities included (1) nomination of the steering committees, identification of national consultants, and organization of the first steering committee meetings to launch the country studies; (2) data collection and in-country analysis; (3) organization of national workshops to present the results and build a consensus concerning the changes needed; (4) publication of four analytical country reports; (5) preparation of proceedings and action plans based on the results of national workshops; (6) monitoring and evaluation of the progress made in implementing the action plans; and (7) evaluation of the changes effected since the inception of the project.
- Three generic documents were drafted: (1) a synthesis of cross-country experiences of the six participating countries with generic lessons for other countries; (2) self-study procedures to enable countries to seize specific opportunities to increase the contribution of their universities in their NARS; and (3) guidelines for strengthening the collaboration between universities and other NARS component institutions for agricultural development-oriented research. An international

workshop was organized to review these documents and it is planned that they be published and widely distributed in the course of this year.

The study is related to the area **Policy and Institutions**.

B. STAKEHOLDERS

The primary beneficiaries of the study are universities, other NARS component institutions, and their clients in the six participating countries. The secondary beneficiaries are NARS institutions and particularly universities in developing countries.

The study was conducted by ISNAR in partnership with the University of Hohenheim and the institutions of the said African countries. In each participating country, two national consultants conducted a case study. They were guided by national steering committees which consisted of agricultural leaders capable of implementing the recommendations drawn from the studies and of executing the action plans which were based on these recommendations. In addition, regional organizations, i.e. SACCAR, CORAF and ASARECA jointly addressed the special research questions which involving all Sub-Saharan African countries, participated in the international workshop and disseminated the results of the study. Key institutions involved in the study were:

- ISNAR, The Netherlands;
- University of Hohenheim, Germany;
- Université Nationale du Bénin, Institut National des Recherches Agricoles du Bénin (INRAB): Bénin;
- Centre National de la Recherche Scientifique et Technologique (CNRST), Institut de l'Environnement et de Recherches Agricoles (INERA), Université de Ouagadougou, Ministère de l'Agriculture et de l'Elevage: Burkina Faso;
- Ministère de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation Technologique (MESRS), Ecole Nationale Supérieure Agronomique, IDEFOR, IDESSA, Ministère de l'Agriculture et des Ressources Animales: Côte d'Ivoire;
- Ahmadu Bello University (ABU), Institute for Agricultural Research (IAR), National Animal Production Research Institute (NAPRI), National Agricultural Extension and Research Liaison Service (NAERLS): Nigeria;
- National Agricultural Research Organization (NARO), Makerere University, Kawanda Agricultural Research Institute: Uganda;
- University of Zimbabwe, Department of Research and Specialist Services, Department of Veterinary Services, Agriculture and Technical Extension (AGRITEX), Agricultural Research Council, Ministry of Education, Ministry of Agriculture: Zimbabwe.

The donors of the study and their contribution to the overall budget are summarized in Table 1.

Table 1: Contributions to the total study budget (in US\$)

Period	BMZ	ISNAR	DSE, GTZ	CTA,	TOTAL
Phase 1 (1994 – 1995)	513,190	173,738	0		686,928
Phase 2 (1996 – 1998)	544,217	361,817	75,000		981,034
Total	1,057,407	535,555	75,000		1,667,962

C. PROJECT RESULTS AND IMPACT

1. Main results of the study

(1) A methodology to analyze and improve both the research performance of universities and the collaboration between universities and other NARS components. This methodology helps universities and other research institutions identify actions and activities related to their mandate and objectives, organization, structure, linkages, resources, information and program management. The methodology was tested and applied in the six participating countries. (2) Six country case studies with specific recommendations, action plans and resources to carry out selected activities. (3) A synthesis of cross-country experiences with generic lessons for other countries. (4) Self-study procedures to enable the countries to seize specific opportunities to increase the contribution of their universities in their NARS. (5) Strategies and actions that these countries can use to improve the contribution of their universities to national agricultural research.

2. Dissemination of the results

A series of three publications, namely (1) an analytical report, (2) proceedings of a national workshop, and (3) recommendations and actions plans, has been produced by local teams in collaboration with ISNAR in each of the six participating countries. They were widely distributed in these countries through the national steering committees. In addition, two national workshops with wide stakeholder participation took place in each of these countries.

More generally, publications are being prepared on strategies and actions in order to improve the universities contribution to research, on approaches to studying and improving the universities contribution to agricultural research, and on a synthesis of cross-country experiences with generic lessons for other countries. These publications will be widely distributed to universities and research institutions in Africa and elsewhere. In addition, an international workshop with representatives from the participating countries, South Africa, regional organizations (i.e. AAU, ASARECA, CORAF, SACCAR), international organizations and universities was held in November 1997. The workshop was important in order to synthesize the information from these countries, to derive generic lessons, and to have input on the guidelines and procedures documents. At the same time, it provided an opportunity to define future roles, responsibilities and funding possibilities of regional and international organizations in order to promote the role of the universities in the NARS of Sub-Saharan Africa.

3. Impact of the project

The project identified the recommendations and actions necessary to improve the contribution of universities to national agricultural research in the six participating countries. Some actions taken are: Faculty of Agriculture at Ahmadu Bello University (Nigeria) established a faculty research planning and co-ordination committee which developed a strategic research plan; University of Benin and INRAB, the main research organization in Benin, drafted a memorandum of understanding to improve the exchange of resources and information; University of Ouagadougou (Burkina Faso) conducted a feasibility study for the establishment of a post-graduate program in agriculture; Ministry of Science and Higher Education (Cote d'Ivoire) established a funding mechanism for joint agricultural research projects; NARO (Uganda) improved its representation on Makerere University board and research committees; Ministry of Agriculture and the University of Zimbabwe (Zimbabwe) jointly developed a proposal to share agricultural research information among libraries based on an inventory of information services. Although the actions taken vary from one country to another, generic recommendations and actions are identified in Annex 1.

At the end of the official project period a self-evaluation of the actions covered by short-term action plans was made by the persons in charge of their implementation. In total, 187 evaluation forms were completed and returned to ISNAR. They represented 85% of all the actions of the short-term action

plans (220 actions). Of the 187 actions, 118 actions (63%) were partly or fully implemented. Persons in charge of the partly or fully implemented actions were asked about the effectiveness, efficiency and sustainability of these actions. Results of the self-evaluation show that the effectiveness, efficiency and sustainability of most of the implemented actions are considered high or very high.

Table 2: Efficiency, effectiveness and sustainability of implemented actions (in % of implemented actions)

	Low	Average	High	Very high	Not known	Total
Efficiency	2	0	43	41	9	100
Effectiveness	2	5	35	50	9	100
Sustainability	8	11	31	41	9	100

Another evaluation is planned for this year. The assessment of the impact of the general publications currently being finalized is not yet possible.

D. PARTNERSHIP

The study used a non –traditional partnership approach to involve several categories of stakeholders from the NARS and allowed the users to play a key role as partners in the research and in the implementation of its results. Thus, modern science on institutional development and local wisdom were successfully combined. A number of key factors that contributed to this successful partnership can be summarized as follows:

(1) Demand-driven study.

There was a strong demand from countries and at the regional and international level to address this issue. Great interest was expressed by 15 different countries in sub-Saharan Africa, 3 regional research organizations, ASARECA, CORAF and SACCAR, CG centers, SPAAR etc. to participate in this project. ISNAR's experience shows that the success of projects will be limited if the countries concerned can not identify the urgent need for institutional change. The recognition of the need for change is essential for the implementation of the project in such countries.

(2) The NARS and policy makers were involved in the project from the beginning to ensure that the project would induce changes.

The project resulted in concrete recommendations and actions that could make the research of universities both more efficient, effective and relevant to the clients needs and to strengthen the university linkages with NAROs. These actions were agreed upon at national workshops with wide stakeholder participation. National policy makers and institution leaders were requested to implement these actions. They are also published in a separate booklet for each of the six countries.

National teams proved that it is possible to bring about changes. The dialogue between the different actors involved in agricultural research has been improved. All six countries were enthusiastic about the progress made and there is more awareness for the benefits of the closer collaboration that took place in most of these countries. Most of the actions of the short-term action plan have been partly or fully implemented. Many of these actions did not have any cost component.

(3) The study was of mutual benefit to all partners involved.

The project combined the benefits for individual countries, through the development and implementation of action plans, with those for ISNAR, by using the same country approach, through the development of public research goods. These public goods, guidelines and procedures, will allow other countries to benefit from the experience gained in the six participating countries.

The inclusion of a Ph.D. student in the study ensured continuous scientific collaboration with the University of Hohenheim and with any additional scientific outcome which was of relevance to this topic.

(4) Ownership of the study by national teams.

The overall project was executed by an ISNAR project team and received advice from an ISNAR steering committee and an international consultant. Collaboration with the University of Hohenheim was ensured primarily through the work of one research assistant whose Ph.D. thesis - part of project activities - was supervised by the University of Hohenheim.

The procedures developed provided for the participation of different collaborators at all stages of the project. The overall project design (goal, objectives, activities) particularly of the second Phase, the conceptual framework and the field work approach were discussed at two international workshops. These workshops were attended by participants from collaborating countries, regional and international organizations.

The country case studies are participatory and action-oriented since all activities, from the implementation of the country studies to the drafting and implementation of the resulting action plans, remained the responsibility of representatives of national institutions. Furthermore, local consultants conducted the study with assistance from ISNAR. High-level national steering committees, composed of key decision makers from various organizations (e.g. Universities, NAROs, Ministries of Agriculture and Higher Education), led the country studies. Strong national participation, i.e. the steering committees and national consultants, will enable them to assist other countries in addressing this issue.

Two national workshops in each participating country were essential in order to establish national ownership and wide participation in the study. The first was to provide for the stakeholders' participation in defining the process of studying university research and linkage performance. The second was to allow the stakeholders to participate in, and contribute to the development of an action plan to help improve university research and linkage performance.

(5) Roles and responsibilities of all collaborators was jointly agreed upon.

In each participating country, a national planning workshop was organized before the study was officially launched. It allowed the stakeholders to reach a consensus about the objectives and expected results of the study, to agree on the approach and the tasks of the different parties (national steering committee, national consultants, ISNAR, University of Hohenheim and international consultants), to prepare the data collection and to agree on the work schedule and deadlines.

(6) Seed money was made available to implement actions to improve the research performance of the university and the linkages with the other NARS components.

Although these funds were limited, their impact was substantial. Nevertheless, the progress made in improving the contribution of universities to the NARS varied considerably from one country to another. The reason is the implementation time (from 4 months in Côte d'Ivoire to 2.5 years in Benin) as well as the type of actions that countries are trying to implement. Whereas additional reports, workshops and meetings etc. are relatively quickly organized, effecting changes in policies and mandates require much more time.

The developed actions and the resulting changes will hopefully convince national policy makers, the international scientific community and donors to provide additional support for the remaining identified actions. This has already occurred in Benin and Zimbabwe and discussions with donors, particularly the World Bank, are presently under way in Uganda, Burkina Faso and Côte d'Ivoire.

A very positive development is that some countries, i.e. Zimbabwe and Uganda, are now making attempts to transfer the responsibilities of the steering committee to other existing institutional committees while Benin, Burkina Faso and Côte d'Ivoire plan to continue the steering committee with national support.

(7) National teams were composed of high level officials who could make key decisions.

The study benefited from high-level representatives from various national organizations who served as members of the national steering committee. These committees played a key role to:

- sensitize policy makers, the management, and the staff of relevant institutions and other stakeholders as to the importance of the study and the potential benefits for these institutions;
- appoint national consultants;
- guide and assist the study team in the collection, organization, analysis, and reporting of relevant data and information;
- disseminate the detailed report and recommendations; and
- implement and monitor the action plan.

It was further important to recruit in each participating country one senior staff member from the national university and one from the NARO as national consultants. The consultants played a key role in conducting the study using the ISNAR approach and in developing the recommendations which were discussed at a national workshop.

(8) Continuity of key collaborators was very important.

Few problems occurred while collaborating with national teams during the study. Most of these problems were related to changes in membership of the steering committee due to new appointments.

(9) There was strong commitment and participation by all collaborators.

All throughout the study - from the implementation of the country study to the drafting and implementation of the resulting action plans - there was strong commitment from, and participation by all the collaborators. Many of the above-mentioned factors had contributed to their commitment.

E. CONCLUSION

The collaborating countries are committed to continue and implement agreed-upon recommendations and actions plans and to identify additional funding sources. They are also committed to share their experience with other countries that wish to address this issue. ISNAR is supporting these efforts. A study network is currently being developed to facilitate the interaction between collaborators as well as collaborators and other interested countries.

ISNAR still needs to complete and widely distribute major project publications, namely (1) a synthesis of cross-country experiences with generic lessons for other countries; (2) self-study procedures to enable countries to seize specific opportunities to increase the contribution of their universities in their NARS; and (3) guidelines for strengthening the collaboration between universities and other NARS component institutions for agricultural development-oriented research. The University of Hohenheim needs to complete the related Ph.D. thesis and the related scientific publications.

ANNEX 1: Strengthening the role of universities in national agricultural research

Annex Table 1: Recommendations to improve the performance of the University

Mandate, objectives, policies	<ul style="list-style-type: none"> • Make the mandate for research more explicit • Formalize the group of faculties (and/or departments) which could contribute to agricultural research • Formulate research strategic plans in accordance with the national agricultural sector needs • Determine optimal time allocation between training, research, and other activities
Organization, structure, linkages	<ul style="list-style-type: none"> • Identify a very senior position (e.g. vice-rector) in charge of research (& extension) for internal and external coordination • Establish post-graduate programs (and possibly centers) • Promote formal inter-faculty linkages • Establish stronger linkages with technology users • Establish stronger linkages with external institutions (national and international)
Resources, information	<ul style="list-style-type: none"> • Provide incentives for more research (change promotion criteria, improve working environment) • Promote team work • Train/re-train staff (e.g. project formulation, scientific writing) • Facilitate access and joint use (i.e. inventory, policy, cost-sharing) • Improve the working environment • Identify the research budget of the university • Improve research funding (e.g. competitive grants, private sector) • Encourage staff to publish, including for extensionists and farmers • Develop joint faculty information strategy
Program planning, management	<ul style="list-style-type: none"> • Improve the P, M&E system at the university (including periodic reviews) • Improve the planning and integration of student research into the national agenda

Annex Table 2: Recommendations to improve the linkages between the different NARS components

Mandate, objectives, policies	<ul style="list-style-type: none"> • Develop an agricultural research policy which clarifies the mandate of and the linkages between all relevant NARS components • Formulate and put into operation a national strategic vision and a masterplan for agricultural research and training • Redefine the role and functions of the existing apex body or examine the possibility to create one
Organization, structure, linkages	<ul style="list-style-type: none"> • Formalize cross-representation in the Boards and Councils • Develop MOUs and contracts between the main actors to implement the national strategic plan • Establish consultative committees and institutionalize joint activities (e.g. scientific days; exhibitions; common journal; research seminars; identification of these subjects) • Establish guidelines for joint supervision of these
Resources, information	<ul style="list-style-type: none"> • Improve the information on national HR • Develop a joint HR development plan and training policy • Develop a database on facilities and equipment available at the national level • Propose ways in which joint facilities can be both utilized and managed • Improve working conditions for external lecturers • Base the funding policy on national priority, participatory and multidisciplinary research projects (e.g. special funds and incentives for joint projects) • Establish an agricultural research fund • Jointly manage journals or publish a common journal • Improve management and coordination of existing libraries • Link the different information management systems
Program planning, management	<ul style="list-style-type: none"> • Make an inventory of joint research projects • Develop a common P, M&E system and cross participation in these exercises • Strengthen the joint supervision of research theses