

Institutionalising demand-driven agricultural research : experiences with the management cycle of agricultural research in Benin

D. Arodokoun ¹, A. Matthes ², I. Gbego ³, J. Sagbohan ⁴

Overview

Benin's agriculture contributes 39 % to GDP and over 70 % to employment. Agricultural production is very diversified and comprises forestry, fishery, plant and animal production. In this framework challenges national agricultural research to develop technologies which perform better in terms of productivity, income, maintenance of the ecological equilibrium. Benin's government has adopted in 1992 a new research policy, which is reflected by the National Master Plan for Agricultural Research. The objective is a more significant and effective contribution of agricultural research to rural development through

- Decentralization of agricultural research according to eco-regional criteria,
- User implication in portfolio related decisions and evaluation
- Generalization of participatory research approaches
- Improved scientific quality,
- Structured relationships with intermediate users

The national institute for agricultural research of Benin (INRAB) was created as an autonomous institute in 1992. Its mandate comprises the following functions

- Contribute to the definition of the national research policy
- Design and implement (or delegate implementation) according to the demand articulated by the government, public, private, national or international organisations relevant research programs for the agricultural sector
- Coordinate all agricultural research activities in Benin
- Contribute to the training of professionals in agricultural research and development.
- Conduct studies and consultancies in its area of mandate
- Contribute to the transfer of research results
- Publication and dissemination of results and thus contribute to the development of scientific and technical information.

INRAB comprises seven sector and three regional programs, which have been adopted by the National Committee for Agricultural Research and the Board of Trustees of INRAB. Since 1997, efforts have been undertaken to create decision platforms at the eco regional level, which involve users in priority setting. Since 2000, the management procedures have evolved to a complete management cycle. Their application is enhanced by a competitive funding mechanism.

Basic concepts and experiences with new organisational and management patterns of client-driven agricultural are described below.

¹ Scientific director of Institut National des Recherches Agricoles du Bénin

² GTZ-advisor at Projet d'Appui à la Gestion de la Recherche Agricole Nationale, 08 BP 1132 Tri Postal, Cotonou, Republic of Benin, Email : AGRAN-GTZ@gmx.net

³ Director of the regional research centre Niaouli of INRAB

⁴ Senior scientist at INRAB

Client-driven technology development and its implications

New technologies for rural development and related information have to meet development objectives and users' needs and should help to use opportunities of income and production increases.

This *Leitmotiv* has many implications on the structure and organisation of agricultural research, the methodological approaches, management and behavior of actors. More explicitly, this means that

- We have to know our clients, their constraints, needs, demand and priorities and to involve them in decision-making
- We need to establish synergy between priorities of target groups and development goals
- An agreed-upon research strategy is needed to mobilize the national agricultural research system.
- Research has to be decentralized
- Operational concepts and funding must be focused on priorities.
- Participatory methods and interdisciplinary research have to be strengthened
- Quality has to be ensured by the appraisal of proposals and monitoring & evaluation during implementation of research
- Impact assessment to attribute development success to research and to analyse failures of technology development.

Framework for the integration of demand and supply of agricultural research

The scenario of actors and users of research services and results in Benin is rather complex. INRAB has developed a conceptual model (Figure 1) comprising the local, regional, national and sub-regional level, which constitutes the framework for the integration of demand and supply of agricultural research in Benin.

The supply side comprises INRAB, its programs and centers, the university, field teams of researchers as well as international research centers that are active in West Africa and Benin.

On the demand side, there are the final users comprising producers, their organizations, producers who are involved in research or observing it. Intermediate users intervene in the transfer of innovations, influence the frame conditions of technological change and rural development or deliver complementary services enhancing technology transfer. This group comprises extension services, financial systems, NGOs and development projects and the ministry of agriculture.

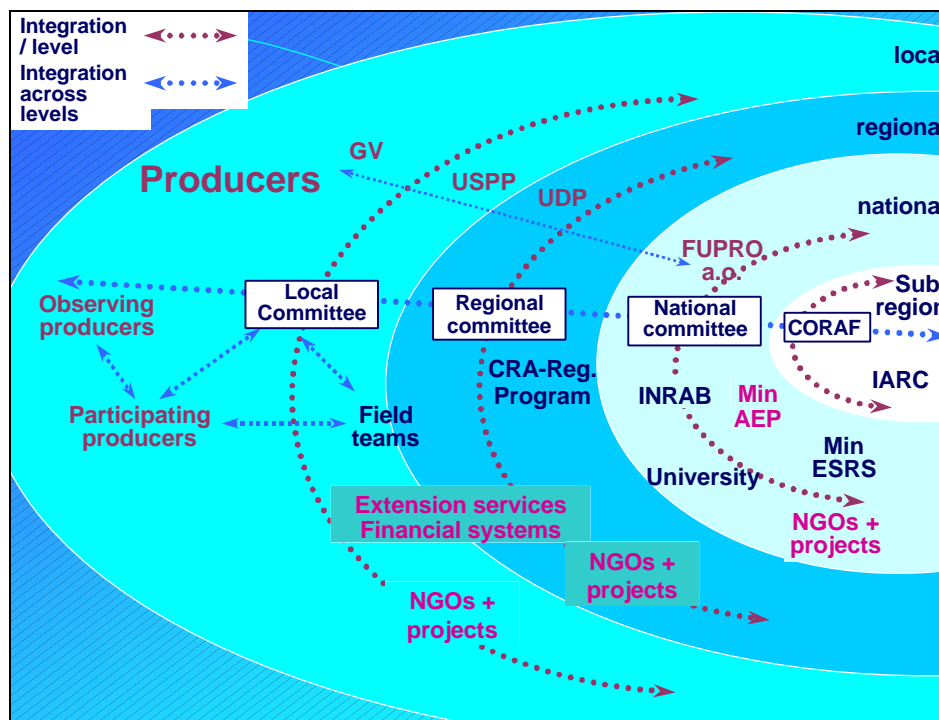


Figure 1 Conceptual model for the institutionalization of demand-driven agricultural research in Benin

Interaction and concertation at each level and across levels is needed for coordinated action in the innovation system. In practice, communicating interfaces are thus placed on each level.

- Presently, about 700 village committees ensure the dialogue with rural service providers, local authorities and producer organizations. Among them, 15 committees acquired experience in the cooperation with agricultural research. They facilitate constraint analysis and priority setting with the villagers, help researchers to coordinate On Farm Research and organize the annual evaluation sessions. Since 2002, they participate during the meetings of the regional committees.
- The regional committee is a plat-form for agricultural research, extension, producers and representatives of their associations. At this level, local research priorities are aggregated, discussed, completed and up-dated. Research results are evaluated and decisions on the research activities of the following year are made.
- The national committee has an analogue mandate at national level. It has been designed at the beginning of the reform process and met unfortunately only once in 1995. Taking into account the evolution of the regional committee that took place since 1999, the mandate of the national committee and the composition will have to be reviewed according to the principle of decentralization and subsidiarity.
- The West African Council for Agricultural Research (CORAF) constitutes the sub-regional interface for national agricultural research systems in the area. Its main task is to promote exchange of experiences and to foster cooperation and labor division among NARS. It is thus a potentially important partner for international agricultural research centers being active in West Africa.

Integration of demand and supply of agricultural research in practice

Design of mid term programs

In 2000, about 300 users and researchers of different disciplines and institutional origins have designed two mid term programs covering three eco-regions. The design process followed different iterations:

- Delimitation of agro-ecological zones and descriptions of prevailing farming and farm systems with interdisciplinary working groups composed of NARS scientists.
- Constraint analysis and priority setting with users
- Articulation of research strategy and priority domains
- Inscription of NARS scientists in identified priority domains
- Design of research projects
- The programs have been adopted by an extraordinary meeting of the two regional committees.

The strategic framework for the design of regional programs was given by the Master Plan for Agricultural Research.

The program design enhanced a structured dialogue with users and among NARS scientists about priorities and appropriate research strategies for the regions. During the design of projects, know how and scientific competences have been mobilized. New, the involved actors have practiced more collaborative behaviors.

Annual management cycle

The next strategic step was to conceive and apply operational management procedures during implementation of the programs, which would ensure further involvement of users, i.e. producers, their organizations, extensionists and NARS scientists. A complete annual management cycle has been developed comprising as major elements (Figure 2):

- Priority setting and up-dates of priorities.
- Annual planning and quality control of concepts.
- A competitive funding scheme to reinforce users' priorities and cooperation among NARS researchers and as lever for scientific quality
- Monitoring & evaluation
- Publications to guarantee availability of results.
- A gateway for technologies to extension.



Figure 2

Main elements of the management cycle of agricultural research in Benin

The cycle begins with the meeting of the regional committee (Figure 3). Presently, two regional committees are operational and cover the three eco-regions of Benin. Thematic groups of the committees evaluate the results of the year and make decisions on research priorities and the transfer of results to extension. We have accumulated a five years experience with the regional committees each involving about 120 resource persons with at least 50 % representatives of users. INRAB's post harvest program adopted and adapted the management cycle in 2001 and a sector committee is now steering the post harvest research in Benin.

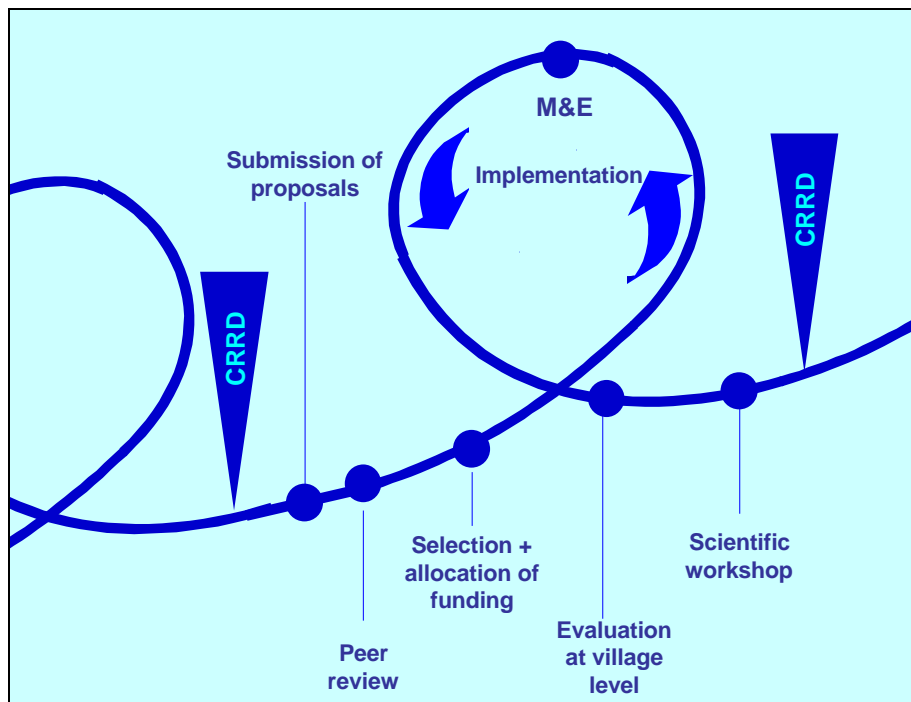


Figure 3 Phases of the management cycle

After this meeting, the Director General of INRAB calls for proposals. Standard formats are made available through the Internet and the secretariats of NARS structures. NARS researchers submit their proposals, which have to be in line with the mid-term programs and the decisions of the regional committees.

A mixed team analyzes the proposals and selects the best ones for funding. The peers are senior scientist from NARS, extensionists, and representatives from producer organizations and NGOs. Three peers analyze each proposal independently. During the plenary, recommendations for improvement are formulated in consensus and decisions on funding are prepared. The following criteria are considered for evaluation, ranking and selection:

- The standard proposal & deadlines of submission have to be respected.
- The proposal has to be covered by the program and the decisions of the committee
- The scientists have to prove good comprehension of the research problem
- The scientific approach must be relevant to the research problem.
- The research methods must take into account the state of knowledge and must be adequate for the research questions.
- Budgets have to be realistic

As a positive side effect, the collaboration of the peers during the review exercise improves the group dynamic among scientist of different origins and disciplines and fosters a corporate identity within the NARS.

Submitting researchers and teams receive recommendations (conditions) for the improvement of their proposals and have to submit the revised version to the second tour of the peer review about one week later for the final decision on selection and resource allocation. Funds are allocated on this basis.

Only 50 to 60 % of submitted proposals are definitely selected. Experience since 2000 proves that scientific quality has been enhanced. Participatory and interdisciplinary approaches have been enhanced and reinforced. Gender specific aspects are increasingly considered.

During implementation, Interdisciplinary teams (NARS, extension) visit the research locations and interview the involved researchers and farmers. The team members are mostly peers of the previous review. They use a standardized interview guideline, developed tools for analysis, synthesis and reporting. Topics are

- Methodological – organizational difficulties - solutions
- Quantitative and methodological adaptations of the original concept and their reasoning
- Mastery of participatory methods
- Timely implementation, administrative and financial aspects
- Involvement of technical staff
- Socio-economic context (e.g. gender aspects)
- Team management
- Statements of involved & observing farmers

The results of M&E are then analyzed, synthesized and documented. An M&E report comprises an overview of all examined protocols, a summary of statements according to the above criteria, identified needs of training and recommendations for further improvement of the management procedures. The individual appraisals are also documented in the report. Involved researchers receive the synthesis and the individual appraisals concerning their protocols.

At the end of the year, results are presented and evaluated at the village level. The village committees organize the meeting with support of the researcher teams. Decisions on pursuit of activities are made and new

The scientific workshop is an occasion for scientists to present their results and to discuss them the workshop is open to researchers who are not yet involved in the regional programs and helps to prepare the next meeting of the regional Committee. Proceedings make the results available to the scientific community in Benin and outside.

Three competitive grants cover operating cost. In 2002, the total volume is approximately 800000 Euro (research contract below included). Benin, Denmark, the Netherlands and Germany contribute to the funding scheme. Since 2002, a French funded research contract is part of the cycle. In addition, producers' contributions in kind are substantial as diagnostic On Farm research, participatory On Farm trials and Farmer-managed validation trials make up 80 % of all activities.

The cycle has effects! Strategic relevance, scientific quality and governance of research in the regional programs have been considerably improved. On Farm and station research are conducted interactively (and not in a linear approach). Below some figure from the South-Central region of Benin are given:

- 94 % of activities are gender specific and focused on priorities of the regional committee & program.
- The funded activities cover 440 research locations in the 8 Departments of South-Central Benin
- More than 2100 farms are involved in participatory On Farm trials and diagnostic research.
- More than 1000 farmers and 750 female farmers participate in gender sensitive On Farm research.
- Inter-institutional teams implement half of all activities. About 70 researchers from NARS have been mobilized.

Outlook and challenges

The participation of users in negotiation, decision-making and On Farm research has to be further improved. Training on participatory approaches and the management cycle will be very important for further progress. Presently we are editing a handbook on cycle management in agricultural research. This will be one of our tools for training and transfer to other programs, other NARS and CORAF.

A computer-based M&E system covering the entire management cycle is presently implemented and will facilitate analysis, synthesis and reporting of outcomes.

For more sustainability of the grant scheme, new funding will be necessary.

Impact assessment in partnerships with extension and producers will start in 2003.

The local committees need to be strengthened in order to improve their capability to articulate and argue research needs, to coordinate On Farm Research and to facilitate evaluation of results.

The national committee has been created in the beginning 90's and met only once in 1995. Since that time, regional committees have become operational and the mandate of the national committee should be revised according to principles of decentralization.

Well-structured partnerships with producer organizations and private enterprises in the framework of programs and the existing management cycles will help to broaden the scale of demand-driven research and are supposed to have multiplying effects on the transfer of results and technologies. In Benin, municipal elections are scheduled for December 2002. We have to prepare ourselves for new partnerships with the future municipalities.

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