

DEVELOPING AN INTEGRATED AGRICULTURAL RESEARCH POLICY: EXPERIENCES FROM BENIN

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A national policy for agricultural research strengthens and supports research by outlining the approaches that research should take and identifying the resource requirements and mechanisms for financial and institutional support for successful agricultural research. It also identifies the principal contributions that agricultural research can make to development. It outlines the approaches that research should take and identifies the resource requirements and mechanisms for financial and institutional support for successful agricultural research. Designers of a research policy need to have a thorough knowledge of the agricultural sector, an understanding of the national development objectives and policies, and an awareness of the comparative advantages of research as a policy instrument.

This Briefing Paper describes the development of a comprehensive agricultural research policy for Benin, undertaken by the Institut national des recherches agricoles du Bénin (INRAB) in collaboration with ISNAR. The paper first takes stock of the country's agricultural research environment and describes the key objectives for agricultural development. It identifies the stakeholders for agricultural research and how they can become involved in formulating research policy. It then outlines the key components of Benin's agricultural research system.

The authors argue that an agricultural research policy should be designed in a participatory fashion, aimed at building consensus. It should also be output oriented, linked with earlier national agricultural research plans and ideas, and it should build on the best available empirical information. The following measures are needed to guarantee the quality of the policy design process: a broad-based working group, an effective secretariat, a small team of policy analysts, an agreed-upon timetable, an early definition of key policy components, open and extensive consultations, and a summary statement for cabinet approval.

The key lessons learned in formulating this policy are to beware of an overoptimistic schedule for finalizing the policy, to establish methodologies and a common vocabulary that allow all stakeholders to participate in discussions, to reconcile scientific and development interests, and to understand the value of empirical evidence for decision making.



Agricultural research and the policy context in Benin

Benin is one of Africa's least developed countries (see box 1). In 1993, the Benin Ministry of Rural Development identified five principal objectives for agricultural development: to improve food security, to increase rural incomes, to enhance the contribution of agriculture to the balance of payments, to consolidate the natural resource base of agriculture, and to increase the efficiency of the government. Since an agricultural research policy can only be effective if it is consistent with other national development policies, the Government of Benin formulated specific strategies to support each of the five objectives. For example, to achieve greater food security, the government simultaneously works to improve the marketing of domestic staple foods and to identify options for regional trade (e.g., with Sahelian countries). To increase incomes in rural areas, it encourages farmers to intensify production systems in the south of the country and to develop new agricultural land in the north. It also encourages farmers and traders to add value after production. To help improve the balance of payments, the government continues to develop the cotton sector, it is revamping the oil-palm sector, and it stimulates export diversification in crops (e.g., pineapple). A major project to protect forest resources was initiated in the north in an ongoing effort to consolidate the country's natural resource base. In its efforts to reduce the role of

the state, the government has already redefined its role in rural development and downsized the Ministry of Rural Development. These policies helped provide the background for designing the agricultural research policy.

Other initiatives that the government took outside the agricultural sector further facilitated the implementation of an agricultural research policy. In order to promote exports and reduce imports, the national currency (the FCFA, which is also used in other francophone West African countries) was devalued by 50% in January 1994. It decentralized government offices to help divert population growth from the overpopulated seat of government (Cotonou) toward less densely populated areas, in particular to the north of the country. The government also works to improve the infrastructure (such as roads and telecommunications) in rural areas.

Between 60% and 70% of funds for agricultural research in Benin come from the government and from the sale of agricultural products and services. The rest comes from bilateral or multilateral donors, as gifts or loans. However, since donors finance most of the operational costs, their influence over the type of research done has been disproportional to their contribution.

Components of Benin's agricultural research system

Various organizations in Benin benefit from a national agricultural research policy. The main beneficiaries are discussed below:

Institut national des recherches agricoles du Bénin (INRAB)

The national agricultural research institute, INRAB is by far the largest player in agricultural research in Benin. It has over 80 full-time scientists, all but three of whom are nationals. Thirty percent have a graduate degree. Twenty scientists devote all or part of their time to management activities.

The Government of Benin provides about 40% of INRAB's annual budget of between US \$1.6–2.0 million. INRAB spends about 90% of the funds provided by the

government on salaries. Sale of oil-palm seedlings accounts for about 15% of the budget. The national cotton development agency Société nationale pour la promotion agricole (SONAPRA) finances most of INRAB's cotton research. Outside funding agencies influence INRAB's research agenda significantly, even though they contribute less than 40% to total resources.

INRAB has a decentralized organization structure, consisting of headquarters, four research stations (two for staple commodities, one for oil palms, and one for coconuts), four research programs (cotton, forestry, rice, and on-farm research), and five discipline-oriented laboratories (rural economics and sociology, crop protection, food technology, livestock and veterinary medicine, and soils). Each unit controls its own resources, and most units maintain close relations with donors. In fact, do-

Box 1: Benin in a nutshell

Benin is a small West African country bordering Togo, Burkina Faso, Niger, and Nigeria. With a per capita income of US \$370, its five million people depend mainly on agriculture and trade with the Sahelian countries and Nigeria for their livelihood. Agriculture employs 59% of the population and accounts for 38% of the gross domestic product. Agricultural conditions vary markedly from the south to the north. In the south, where population density is above 200 persons per sq km, rainfall conditions allow two crops per year. However, overexploitation of agricultural resources threatens productivity there. In the north, where population density is less than a tenth of the south, climatic conditions resemble the Sahel, with only one rainy season per year and greater chances of drought. Maize, cassava, and yams are the most important foods. Cotton is the principal export crop.

Box 2: Research policy and agricultural development in Benin

The Government of Benin defined five principal objectives for agricultural development. The Benin NARS defined its research agenda according to these objectives to ensure that research is compatible with other agricultural development policies. Unlike many other NARS, the NARS of Benin did regard the link with the country's overall development policy as the key criterion for designing the country's agricultural research policy. This also shows that its approach is problem driven rather than science driven. Here are some of the implications for the research policy:

Objective	Implications for agricultural research policy
Improve the efficiency of the government	a) Reduce the number of administrative positions in INRAB. b) Increase the flexibility of research programs. c) Encourage the participation of the university, NGOs, and other institutions in the research system. d) Concentrate resources in a small number of priority programs.
Increase rural incomes	a) Do research on postharvest and marketing problems. b) Do research on intensification and improved water management. c) Adopt a participatory approach to identify potential income improvements.
Improve balance of payments	a) Develop capacity to screen new technologies for export products. b) Help identify new export products and do adaptive research on possible export products. c) Explore alternatives for rice and wheat consumption.
Improve food security	a) Emphasize research on staple food crops. b) Apply research results on food crops of the international agricultural research centers. c) Develop improved storage technologies.
Protect natural resources	a) Develop research centers with an integrated regional mandate. b) Strengthen research on soil and water management. c) Strengthen forestry research.

nors have reinforced INRAB's decentralization. As donors can approach research units directly, they often use the units to pursue their own objectives. (And they thus share in the credit that units receive for achieving specific research results.) INRAB's central administration unit plays a coordinating role but has had limited means to enforce its authority so far. A major factor contributing to this situation is that donors have shown little interest in strengthening the central administration unit.

Because of a largely donor-driven research agenda and the lack of an authoritative central coordinating unit, INRAB consists of a wide range of largely independent, poorly coordinated units. It lacks uniform management guidelines, and it has no clear commitment to institutional or national objectives.

Université Nationale du Bénin

The national university of Benin has a large pool of highly qualified staff. Of the 56 staff of the faculty of agriculture, more than 60% hold a doctorate. The principal mandate of the university is teaching, but staff spend a significant share of their time (32%) on research. Research is concentrated in areas where significant cooperation with INRAB exists, for example, agricultural economics, food technology, natural resource management, plant production, and plant protection.

Management of the university's research is even more decentralized than INRAB's. Donors can even contract individual scientists to carry out a particular study. While this reduces the focus on research, university scientists are motivated to publish their research efforts, as this is a principal factor in their promotion.

Comité national de la recherche agronomique (CNRA)

The main role of CNRA, a consultative body under the authority of the Ministry of Rural Development, is to coordinate agricultural research in Benin. Each year, CNRA invites policymakers, representatives from extension agencies, and scientists from INRAB and the university to a three-day meeting to present research results and discuss future research plans. CNRA uses the outcome of these meetings to formulate a proposal for a national agricultural-research budget, which usually far exceeds available resources. The budget that the government eventually approves only partially follows CNRA's recommendations.

Since CNRA has proved unable to influence the national research budget and to coordinate agricultural research between INRAB and the university, neither INRAB nor the university has shown any interest in implementing CNRA's recommended research plans. CNRA fared much better in its policy recommendations to the government, which has adopted several in recent years, albeit sometimes after considerable delay.

Box 3: Agricultural research priorities for Benin

Priority setting is based on an analysis of the agricultural sector and a judgment of the kind of progress that research can bring about. The working group (see *Structural measures*, page 6) combined the analysis that was carried out by a group of national consultants with its own assessment (see figure 1). The priority-setting exercise concentrated on these questions:

1. Regional research programs or subsector research programs?

Opting for a regional or a subsector approach has significant implications for the research agenda. A regional program focuses on regional problems in soils, water management, forestry, livestock, crop production, or institutional development. It allows the inclusion of natural resource management (NRM) concerns and participatory methods. A subsector approach concentrates on the problems of a crop, e.g., in production, marketing, or consumption. This is a better approach for promoting exports. Food-security and rural-income concerns would not strongly favor one approach over the other. The working group assessed how each of these approaches contributes to the national rural-development policy. In the end, it favored the regional approach over the subsector approach. It set a target to employ 60% of financial resources in regional programs.

2. Which regions?

Using earlier research results, the INRAB-ISNAR project team distinguished five regions. Priorities among these regions depended on two factors:

- The relative gain in agricultural performance that research would bring about. Further criteria for this factor were developed.
- The number of people who would feel the impact of such gains.

The relative gains would be highest in the north, followed by the south. However, as the number of beneficiaries would be much higher in the south than in other regions, the south was to have the largest regional program.

3. Which other programs?

The working group targeted 40% of resources on programs with national coverage. This included programs for research on basic staple foods, industrial crops, postharvest and mechanization problems, agricultural diversification, agricultural policies, and a program to gain access to global information sources on agriculture. It proved difficult for the INRAB-ISNAR project team to compare these programs in an objective and quantitative manner. The characteristics of the programs were very different, and they depended on each other to some degree. Using a set of qualitative criteria, the working group and the project team determined that the postharvest and information programs were the most crucial for Benin's agricultural development.

Other stakeholders

Some nongovernmental organizations (NGOs—such as *Projet Songhai* and *Sasakawa Global 2000*) also conduct agricultural research. In addition, agricultural development projects and rural development and extension centers do adaptive research and promote findings from INRAB and the university. The International Institute of Tropical Agriculture (IITA) has facilities in Benin for research on biological control, and it undertakes some research with specific relevance for Benin.

However, the foremost stakeholder of agricultural research is always the nation; research that is properly conducted and managed has a significant impact on overall productivity and thus contributes to a country's economic development. Because Benin has an open economy and a strong agricultural orientation (see box

1), the principal beneficiaries of agricultural research, in particular of the cost reductions that it can bring about, are the farming and fishing communities in the rural areas. Other interested parties are the domestic marketing sector and urban consumers, who would benefit in particular from better products and improved storage conditions. Yet another stakeholder is the export trade, which is eager to develop products that can compete on the world market.

Since the benefits of agricultural research are so widely felt throughout the economy, the Ministry of Rural Development and the Ministry of Planning take a keen interest in the proper direction of agricultural research. Ultimately responsible for the country's development policy, they are among the key players in the development of Benin's agricultural research policy (see table 1).

Criteria for the policy design process

Consisting of two staff members from INRAB, three national consultants, and three part-time ISNAR staff, the INRAB-ISNAR project team formulated the following criteria for designing agricultural research policy:

Participation. All national stakeholders should participate in developing the policy. Such broad participation ensures that the policy takes into account all the relevant opinions and positions and covers all relevant

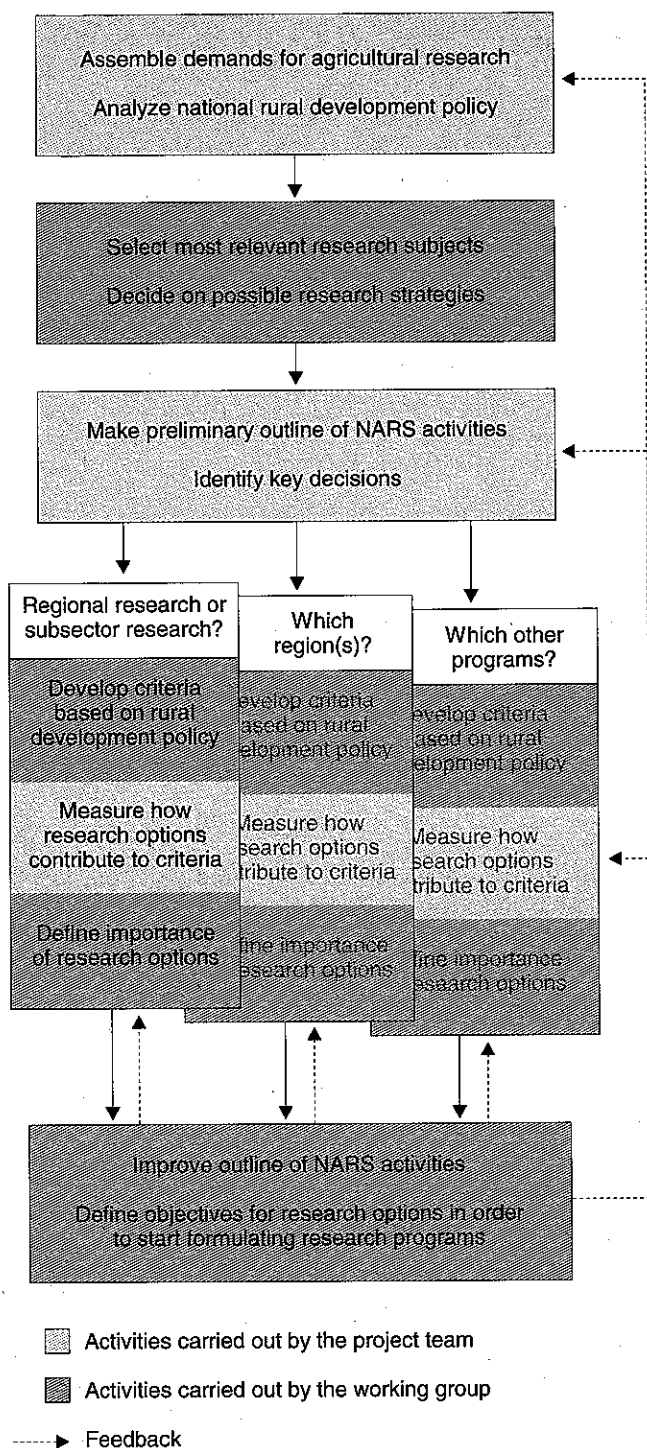


Figure 1. The priority-setting process in Benin

issues. Broad participation is also very important to identify practical issues regarding implementation.

It was decided that donors were not to be invited to participate in formulating the policy; the design of the policy should be a national responsibility. Donors should only be consulted, and their support for designing the policy should be sought. Once the policy has been formulated, donors can decide whether and to what extent they want to support it. Confronting donors with a finished policy limits the chances of fragmentation of re-

search efforts, which occurs when research responds to individual donor requests.

Consensus building. While broad participation is necessary, an agricultural research policy cannot satisfy all stakeholders to the same extent, and reaching full consensus on the end product should therefore not be an aim in itself. *Consensus*, here, means that all participating stakeholders agree on the *way* in which the product is designed. To arrive at this consensus, stakeholders should be made to feel that their opinions and points of view have been heard and given due consideration.

Timeliness. An agricultural research policy should be developed within a short period of time, preferably less than six months. This forces the developers, consultants, and others involved in the design process to focus on the most important research issues. Exceeding the six-month time limit may lead to unrealistically high hopes among the research community on the outcome of the policy.

Output orientation. An agricultural research policy provides concrete guidelines and suggestions for action. This can be achieved most effectively if, from the beginning of the design process, the designers translate the analysis of problems and opportunities in the agricultural sector into proposed actions in the policy. By focusing the discussions on the feasibility of the proposed policy actions, closure is most easily achieved.

Leadership. It is possible to combine timeliness and output orientation with consensus and broad participation only if there is sound and accepted leadership in the design phase of the policy. The foremost quality of the leader must be an ability to forge a forward-looking view among the participants in the policy design process. The leader must also have an ability to resolve conflicting interests and to close debates if opinions cannot be reconciled. The leader also has to possess good communication and interpersonal skills and has to represent the highest institutional interests in the policy, such as the minister of agriculture or rural development.

Continuity. Research policies are often developed under the assumption that none exist, and the new policy may thus mean an abrupt break from current practices. As this unnecessarily complicates the implementation of the new policy, the existing policy situation should be carefully examined and should be the starting point for formulating new policies.

Information base for decision making. Policies should be based on the best available data and on sound analysis of this data. However, since data is often limited in both quality and quantity, those involved in formulating the policy often rely on their own subjective views instead of on a sound analysis of reliable data. Collecting relevant data is therefore an essential component of the policy design process. Investing in collecting data

Box 4: Funding agricultural research in Benin

Public spending on agricultural research in Benin as a share of agricultural gross domestic product (AgGDP), currently at around 0.2%, is substantially lower than in other countries in the region, where it is about 0.5%. It is also much lower than recommended by the Food and Agriculture Organization of the United Nations (FAO) (2%) and the World Bank (1%). The working group questioned the FAO and World Bank criteria and assessed Benin's financial capacity to fund research.

Benin is doing well in allocating 12% of the budget of the Ministry of Rural Development to research. However, the share of the total government budget for the Ministry of Rural Development should be increased from 5.9% to 9.5%. In addition, the fiscal capacity (total budget/gross domestic product) should grow from 10.9% to 14.5% to achieve a research intensity ratio (percentage of AgGDP spent on research) comparable with countries at a similar level of development in the region. A strong commitment from the government to rural development and fiscal recovery is a key factor.

The Government of Benin has indicated that it wants to reduce its dependency on donor funds in the long term. With this aim in mind, the project team anticipates that the donor share of recurrent research funding will fall from 50% at present to about 20% by 2010. It also expects that government spending on agricultural research will rise from the current level to 0.54 % by 2010.

A number of other measures will supplement government funding:

- The government will promote the sale of produce and services by research institutions.
- INRAB will seek support for research on export crops by soliciting direct contributions from agencies promoting such crops, such as SONAPRA for cotton production.
- The Ministry of Rural Development will provide public funds to match funds made available to INRAB by the private sector in order to undertake research of interest to the private sector.
- The government will install a consolidated funding mechanism whereby the national research program will become the cornerstone of all donor programs in agricultural research.

serves two other important purposes: (1) it improves the factual basis of the research policy, and (2) it enhances the availability of information for actions that need to be

taken after the research policy has been completed, such as formulating a research program.

Elements in managing the policy design process

To effectively manage the policy design process, the project team combined a number of structural measures with procedural elements.

Structural measures

At the request of the project team, the Minister of Rural Development appointed a working group that was charged with formulating the policy (see table 1). The working group conducted five one-day meetings, each focusing on one component of the policy, and one sub-

sequent three-day meeting, where the whole policy paper was reviewed in detail.

The Service des études et programmes, a unit of INRAB responsible for research planning, coordinated the workshops leading to the preparation of the policy. A full-fledged secretariat (with a secretary, computer, printer, fax, e-mail, and photocopier) was established to support visiting local and international consultants. The Service coordinated the INRAB-ISNAR team, which undertook the initial analysis and prepared preliminary recommendations for coordinating the policy working group. To keep all stakeholders informed of the new directions and emerging issues and to muster support for new ideas, INRAB management issued a biweekly newsletter for INRAB staff, prominently featuring the development of the policy.

Procedural elements

In its first meeting, the working group agreed on a framework for the policy and a work plan, including a timetable. The working group also identified five key components of the policy:

- the link between the agricultural development policy and the agricultural research policy (see box 2);

Table 1. Composition of the Working Group Charged with Formulating the Agricultural Research Policy

Institution/organization	No. of represent.
Ministry of Rural Development	4*
Ministry of Finance	1
Ministry of Planning and Economic Restructuring	1
Faculty of Agriculture of the Université National du Bénin	1
National Scientific Council	1
INRAB	1
regional development and extension agencies	2
Chamber of Agriculture	1
an agricultural cooperative	1
ISNAR	1**

* Including the chair (a special advisor to the minister).

** Nonvoting member.

Box 5: INRAB as the prime mover of the Benin NARS

Benin's new agricultural research policy defines a national agricultural research program that consists of regional and commodity programs. It is expected that units other than INRAB, the university in particular, will execute 10%–15% of the program. To ensure effective and efficient use of resources and to maintain coherence and relevance, a coordinating mechanism is needed that not only centralizes information but also decentralizes responsibility in execution.

Regional and commodity research committees will be formed to oversee and direct agricultural research in their respective areas. These committees, especially the regional ones, work well only if representatives of farmers' and other user groups are invited to participate. Both committees will communicate their recommendations on current and future research to the National Agricultural Research Committee (NARC), which will meet once a year to review past research and approve new initiatives. NARC will forward its recommendations to INRAB's Board of Trustees for final approval and budget allocations. This firmly establishes INRAB not only as a principal executing agency of the national program, but also as its overall coordinator.

INRAB's planning, monitoring, and evaluation unit will be responsible for planning this process, ensuring adequate participation from stakeholders in all committees, and consolidating committee recommendations at the national level. It will maintain a national database on current agricultural research. Responsibility for executing the research will be substantially decentralized to regional centers and program leaders in order to minimize administrative overhead.

- a review of the components of the Benin NARS and of the relations among the components to improve coordination of the national agricultural research policy;
- setting priorities: identification of principal research approaches and subjects, preliminary breakdown of resources across programs (see box 3);
- the financial capacity of Benin relative to the size of its NARS: alternative sources of financing and cost of research (see box 4);
- INRAB as the prime mover of the Benin NARS: how to achieve greater effectiveness, efficiency, and sustainability (see box 5).

At the same meeting, the working group agreed on a schedule for future working-group meetings and the

date for a national conference on the policy. After this meeting, the INRAB-ISNAR project team wrote draft papers for each key policy component. The working group reviewed and revised the drafts and passed the revisions on to the national conference. The conference was an important milestone; more than 80 participants, representing all stakeholders, discussed the draft policy in great detail.

The final policy document contained statistical background information on Benin's agriculture, as well the key objectives for developing long-term research plans and the key criteria for defining future resource requirements. The policy document was summarized in a short policy statement, which was submitted to the cabinet for approval. After the cabinet's approval, the statement became an important tool for formulating the subsequent research programs and developing operational plans.

Lessons learned

Schedule. Scheduled to be completed in less than four months, the policy took eight months to design. As the policy proposed several major changes that some stakeholders in the research community found disturbing, taking stock of the objections and reaching consensus on the end product took much longer than expected. So as not to become bogged down by problems in reaching consensus, the authors of this paper recommend appointing within the lead institute a person fully dedicated to the policy design process. An important task of this person is to help avoid delay in reaching consensus.

Type and quality of analysis. Many of the participants involved in formulating the research policy were not researchers, and only a few were trained in analyzing the agricultural sector or the role of research. Relatively unsophisticated tools such as analysis and scoring models proved very helpful in keeping discussions transparent

and to the point. All participants were thus able to contribute to discussions on a more or less equal footing and, more important, arrive at clear and unambiguous conclusions on critical issues.

Balancing the interest of the farming community and the research community. As discussed above, the farming community is, by far, the largest stakeholder of agricultural research. However, it is the least organized to express its needs. Since its interests vary considerably across regions according to environment, resource endowment, and development potential, it was impossible to give the farming community adequate representation in the debate. In an effort to include farmers' interests, the team invited farmers' organizations and extension agencies to participate in the discussions. The policy still has to define ways of involving farmers in research planning and execution. One way is to promote regional

research programs, where consultative mechanisms can be further developed.

Working with empirical data. As in many other developing countries, reliable data on the performance of the agricultural sector in Benin is limited and spread across a number of sources. Making an effort to collect and organize this data is useful for several reasons. First, the total available data often provides a much more complete picture than expected. Second, whereas incomplete and unreliable data typically leads to discussions about the credibility of the data, a consistent set of data helps participants tremendously in drawing policy conclusions. Third, agricultural research managers can use the collected data for many other purposes, such as program formulation.

Speaking a common language. Formulating a research policy is not an everyday task for most stakeholders. Many of the questions that the Benin stakeholders had to answer were quite new to them, and apparently minor obstacles such as the "language" of agricultural research policy can seriously impede progress. Especially in the analytical elements of the policy (such as priority setting), terminology has to be clear, simple, and unam-

biguous. In the debates, presenters should be aware that to avoid miscommunication it is important to explain the analytical approaches that are being used.

The difficulty of making choices. The Benin NARS receives numerous research requests each year. Because the policy was formulated from a national point of view, the team could discriminate between important national research issues and less important ones. Selecting the most pressing subjects proved to be difficult, however. The participants were afraid that a research activity that might produce an important "winner" technology would not be pursued, and there was concern that certain groups of stakeholders would withdraw their support if their favorite research topic was given lower priority. Nevertheless, the project team recognized that making "wrong" choices is not as serious as not choosing at all and, thus, not achieving any progress at all. Even if agricultural research in Benin focused on staple food crops only and added only 1% to the growth rate in staple-food production in the next 15 years, research benefits would be five times the research costs. Thus, learning to do a few things well rather than all things poorly is one of the main lessons that are to be learned from developing an agricultural research policy.

About the authors and this briefing paper...

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About ISNAR: The International Service for National Agricultural Research (ISNAR) assists developing countries in making lasting improvements in the performance of their agricultural research systems and organizations. ISNAR promotes appropriate agricultural research policies, sustainable research institutions, and improved research management. ISNAR's services to national research are ultimately intended to benefit producers and

consumers in developing countries and to safeguard the natural environment for future generations. A nonprofit autonomous institute, ISNAR was established in 1979 by the Consultative Group on International Agricultural Research (CGIAR). It began operating at its headquarters in The Hague, the Netherlands, on September 1, 1980.



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