

STAKEHOLDER-DRIVEN FUNDING MECHANISMS FOR AGRICULTURAL INNOVATION

Case studies from Sub-Saharan Africa

Willem Heemskerk and Bertus Wennink (Eds.)

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FOR AGRICULTURAL INNOVATION**

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Executive summary

Context and rationale

Agricultural development aimed at poverty reduction in Sub-Saharan Africa (SSA) requires greatly accelerated technological, organizational and institutional innovation. Emphasis on strengthening the demand side for agricultural service provision and the call for a separation of responsibilities for policy making, funding and implementation have resulted in alternative funding mechanisms for agricultural research and development (R&D) at national and local levels. The new financing arrangements aim at enhancing multi-stakeholder resource control, increasingly involving research clients and the end-users of agricultural production and processing technology in decisions concerning the allocation of staff, money and infrastructure. It is envisaged that the reorganized funding mechanisms for agricultural innovation will combine greater efficiency in resource management with improved effectiveness in innovation development, through stronger client control, thus better addressing the agricultural and natural resource management needs, particularly of small-scale farmers and processors.

Each of the different stakeholders in the agricultural innovation system (AIS) has a role to play in the system and hence also in resource allocation and use. An Agricultural Knowledge and Information System (AKIS) focuses on the generation as well as the dissemination of technologies. Similarly, in an AIS, the emphasis is on the development as well as the actual adoption of technological innovation(s) in any component of the agricultural product value chain (APVC) or system: making this happen may require substantial organizational and institutional adaptation. AISs are complex and make it necessary to take account of the needs at local and/or sub-sector level. Its multi-stakeholder environment requires demand-driven R&D priority-setting, subsequent interactive learning opportunities and client-responsive funding mechanisms. Stakeholder involvement and client empowerment have also led to a deconcentration of funding mechanisms for agricultural innovation.

The roles of the various groups of stakeholders in an agricultural innovation system are changing rapidly. The government increasingly emphasizes its regulatory functions in which it also tries to stimulate the effectiveness and efficiency of R&D service provision. For reasons of transparency and effectiveness, the functions of financing, planning and budgeting, as well as providing services in an AIS, are all being separated. Ideally, planning and

budgeting is a multi-stakeholder and client-driven activity: the actual R&D financing is provided either through the state (including donors), through jointly managed funds (i.e. by clients and providers) or through public-private partnerships (PPPs). Implementation is mostly through specialized agencies including Research Centres (public or private), Non-Government Organizations (NGOs), etc. In SSA it has become increasingly difficult to mobilize financial resources for AKISs from the public sector, while a trend exists among donors to channel more of their funds through the demand side. The resulting pressure on resources calls for alternative financing mechanisms in order to generate incremental funds and use these more effectively, while the issue of increasing state financing for R&D must be addressed simultaneously.

The rationale for alternative funding mechanisms is the enhanced opportunity to: better align resources with priorities, develop partnerships through joint planning and budgeting plus collaborative implementation, enhance and strengthen R&D demand, contribute to the efficient use of available resources, improve reliability and timeliness of the funds, upgrade the quality of the outputs, and finally to enlarge the number and diversity of knowledge and information providers. Some of the common funding and financing mechanisms are: the “block grants” (i.e. the traditional way of government funding), competitive grant schemes (CGSs), cost-sharing and co-financing arrangements, contract research (“insourcing”), and full privatization of service provision (“outsourcing”). A wide diversity of CGSs currently exists in SSA countries, varying from national schemes to (agro-ecological) zonal grant funds at meso level and district technology development funds, all with varying degrees of stakeholder involvement and participation.

Issues and challenges

The main challenges for the stakeholder-driven funding mechanisms at zonal/local level are the need to be effective in improving productivity and incomes of pro-poor APVCs through enhanced innovation, resource efficiency, institutional and financial sustainability and stakeholder ownership: this requires substantial institutional change. Innovative alternative funding mechanisms require far-reaching institutional innovations, such as enhanced client control over priorities and resources, expanding the range and skills of service providers, as well as organizational changes within the various stakeholder organizations, not only in the public sector, but also with regard to farmers’ organizations (FOs) and the private sector.

Stakeholders from both the supply and demand side must have the capacity to meaningfully participate in the AIS in general, and in its funding mechanisms in particular, in order to contribute to the desired effectiveness and efficiency. Innovative funding mechanisms must be designed to contribute to the strengthening of R&D partnerships as well as to become vehicles for attracting funding from both public and private sources. Zonal/local funding mechanisms face the challenge of combining enhanced stakeholder participation with long-term sustainability, which is at risk due to economies of scale and relatively

large overheads. The focus of these funds on adaptive research and dissemination demands greater stakeholder participation. Zonal/local competitive funds for agricultural innovation financed by public financing mechanisms (national budget or levies and taxes) need to be matched with other funds to become sustainable, although this means establishing local stakeholder ownership and integrating different priorities and perspectives.

Case studies

This review examines various experiences describing the performance of stakeholder-controlled funding mechanisms, such as CGSSs and public-private sector matching funds. In countries such as Tanzania and Benin innovative approaches for sustainable stakeholder-driven funding mechanisms have been developed over the last decade. These experiences are documented in this bulletin, describing best practices and identifying lessons learned. In partnership with KIT (Royal Tropical Institute), specific case studies from Tanzania and Benin were developed by the stakeholders involved and were discussed at local workshops. The overview and the specific cases were further analyzed via a SWOT analysis, and a synthesis was produced of the main findings.

This review also covers experience with three Tanzanian competitive funds: the National Agricultural Research Fund (NARF), the Zonal Agricultural Research Funds (ZARFs) and the District Agricultural Research Funds. For Benin, an assessment was made of the Competitive Funds for Zonal Research Programmes. In Tanzania the NARF is a competitive funding mechanism that pools resources for all priority agricultural research priorities. A multi-stakeholder committee manages the fund, which can be accessed by various actors in the NARS. The NARF secretariat is employed by the public (national) Department for Agricultural R&D. Complementary to NARF there are seven sub-national ZARFs, which concentrate on adaptive research and dissemination, and address zonal research priorities established by local stakeholders. For the ZARFs, local ownership is stronger than with the NARF, partly because district local governments also contribute to the zonal funds. In Tanzania some districts (e.g. the Eastern Zone) have established their own competitive grant mechanisms for outsourcing research and extension services seen as priorities by the stakeholders in the district. In Benin, the National Agricultural Research Institute (INRAB) manages a national competitive fund, which has been deconcentrated to the zonal level for stakeholder-driven resource allocation. However, the zonal funding mechanisms have remained part of the National Competitive Grant Scheme, and hence INRAB remains charged with overall supervision. These zonal competitive funding mechanisms for adaptive research and dissemination are accessible to all NARS member organizations, as well as the public-sector agricultural extension service.

Two cases are presented concerning PPPs for agricultural innovation: one from Tanzania on the privatized Coffee Research Institute (TaCRI), and one from Benin on public-private funding of agricultural R&D for cotton. The coffee

sector in Tanzania has established a coffee R&D fund that is financed through coffee export levies. The fund is managed by the Tanzania Coffee Board, but is mostly made available to only one stakeholder, the privatized TaCRI. In Benin, the Ministry of Agriculture has agreed with the Cotton Association (AIC), which represents most cotton-sector stakeholders, to establish a common fund based on cotton export levies to finance cotton research and extension support services. Private parties (i.e. cotton producers and ginners) have contracted the public-sector extension service to provide agricultural extension services.

Lessons learned

The Tanzania and Benin case studies have yielded a wide variety of lessons. The Tanzania NARF brought about a clearer research focus on key priorities. However, a major shortcoming was the fact that the fund contributed little to closer collaboration between institutions within the NARS, although this was one of its main objectives. Two key clusters of NARS actors, the Ministerial Research Departments and the Agricultural Universities (especially SUA) need to greatly strengthen collaboration at research project level. This weakness was partly caused by inadequate M&E, a responsibility of the NARF management. Another problem was the erratic flow of funds, which needs to be stabilized by ensuring more dependable and time-bound contributions by donors (including the government) or possibly by establishing an “endowment fund”. A major remaining challenge is capacity development among all fund-management actors. Stakeholder representatives should be drawn from established FOs, and they need training in their roles and responsibilities, which requires the allocation of adequate financial resources.

The Tanzania ZARF experience also demonstrated that strengthening capacity, particularly of FOs, is crucial for the identification and clear articulation of their demands, and is in fact a condition for a strong and inclusive demand-driven innovation system, and a start of the interactive learning process. ZARF's multi-stakeholder management teams also require capacity development for financial resource allocation, budgeting and M&E, auditing, value-for-money assessments, communications with stakeholders and downward accountability. National policy makers need to support local efforts to make ZARFs sustainable by helping them to establish procedures for working with low-transaction costs, providing for specific district innovation development budget lines, and also establishing local financing mechanisms, such as district taxes. It is evident that institutionalization of the “matching fund principle” (e.g. by donors) often represents a powerful local fundraising incentive.

An important positive outcome of the district-based agricultural innovation funds set up in Tanzania has been the participatory planning approaches, including identifying selection criteria and the joint establishment of priorities by village and farmers' groups, including organizing village workshops to verify village-level information. Effective and efficient fund operation requires improved district staff ability in planning, financial and contract management (including the development of TORs, and in the processing and awarding of

contracts). The poor response from researchers and extension staff to district calls for R&D proposals is partly due to the researchers' conventional inward-looking and supply-driven attitudes, inadequate socioeconomic research capacity and the lack of ability by the extension services to facilitate farmers, farmer groups and FOs to express their priorities. Major logistic constraints relate to interpreting procurement procedures, and the time and costs involved in the participatory planning process.

In Benin the competitive zonal funding mechanisms, which are linked to the national CGS, are part of the overall research planning and management cycle, including peer reviews, multi-stakeholder examination of R&D proposals, monitoring of implementation, accounting for the funds received and evaluation of the results produced. The multi-stakeholder meetings have contributed to greater R&D relevance and transparency concerning costs and benefits, plus enhanced communications, as well as to a better understanding of decisions by research management on priorities and resource allocation. Separate R&D workshops contributed to enhanced research quality and a stronger performance orientation; researchers also benefited through improved review skills and enhanced synergy and focus. Enhanced relevance, transparency and quality also incited other donor-funded R&D programmes to have their research proposals and results reviewed through the same multi-stakeholder mechanisms.

However, agricultural extension remains the weakest link in the AIS, underlining the need for a more pluralistic and demand-driven agricultural extension and advisory system that is provided with adequate resources. Training of FOs in priority setting and participatory planning and implementation of research, as well as client-empowerment through cost sharing are crucial. A comprehensive R&D funding system is required that provides a balance between strategic, applied and adaptive research, as well as with regard to priority research topics and better donor coordination, with national ownership demonstrated through increased financial commitments.

The privatization of TaCRI has resulted in a clear shift towards stakeholder-driven adaptive coffee research and pre-extension services, based on participatory planning and budgeting. The resulting research programmes are more relevant and output-oriented; they also achieve a better balance between the currently available research resources and the timing of anticipated practical results. The continuing need for producing public-good R&D products (particularly for smallholder coffee growers), the need to cope with emerging long-term sector-strategic issues such as food safety and quality (in connection with new requirements, particularly by the EU), as well as concerns regarding environmental sustainability and socioeconomic well-being of producers, all provide a strong justification for continued involvement (also financially) of the public sector in coffee R&D. Enhanced coffee production is expected to lead to increased cess levies for research support, but public intervention continues to be required to ensure special tax arrangements, substantial coffee sector infrastructure investment, and continued smallholder focus. TaCRI needs to further strengthen interaction with FOs through its representation in coffee

research management and the involvement of farmer groups in adaptive coffee research.

The Cotton Association, which represents stakeholders in the Benin's cotton sector, has developed a special partnership with public agricultural extension. The financial resources provided through cotton levies are used to recruit and employ extension agents (on a contractual basis), who provide services to cotton-producing farming communities and households. The involvement of village-level FOs has led to enhanced monitoring of extension agent performance. The partnership has also contributed to a clear separation between the funding and implementation functions of the cotton R&D system. The contracting of service provision with the decentralized entities followed the "subsidiarity principle": the specifics of extension services to be provided are agreed at village level, technical support is provided from the district level, and management and supervision are organized at provincial level. A major issue for the extension service with a public mission mandate is that cotton-producing communities and farmers benefit particularly from this partnership. An effective commitment by both the government and the FOs is needed to ensure accessible, equitable services on a demand-driven and performance-related basis. In order for the system to work, a sustained commitment by FOs and reinforcement of their capacity in M&E procedures are crucial. New multi-stakeholder partnerships are needed, which emphasize interactive learning and learning-by-doing, and the establishment of sustainable, pluralistic and demand-driven extension services provision.

Conclusions

Local R&D funding schemes have contributed significantly to the overall goal of financial diversification for agricultural innovation, with a greater contribution by research clients and other stakeholders. However, the real and substantial empowerment of farmers and their organizations in controlling the financial resources for adaptive research and pre-extension is still a long way off. This also applies to the private sector in general, although progress has been made, particularly with the commodity-based innovation development funds. Downward accountability has improved, but real client control of funds has stagnated, in part due to the traditional "top-down" attitudes of the researchers. Farmer representation on the management teams of R&D CGSs remains weak. Also, some stakeholders, particularly district governments, shy away from supporting local funds (where they lose direct control) in favour of independent "contracts" for specific research and/or extension services. This is threatening broad local ownership of such competitive funds, although they still represent a vehicle for multi-stakeholder resource control of financial resources (provided mostly by the treasury and donors).

From the review of the case studies, it can be concluded that the key goal of financial diversification has been achieved, with greater financial contributions by zonal clients leading to (partial) downward accountability. However, more effective mechanisms remain to be developed, in order to ensure that

stakeholders really own the local funds and that poor farmers, including women, have a real voice in resource allocation, even if it's through their representatives. Decentralized and deconcentrated local innovation development funds were found to be more successful in technology generation and also had advantages over other funding mechanisms as a result of the competitive element, which enhanced the quality of research, the sense of ownership by farmers and other stakeholders, and the control over resources by clients.

However, some major concerns that are not yet satisfactorily addressed are:

- i Viable mechanisms for client representation.
- ii The priority focus and pro-poor status of available funds.
- iii The level of cost-sharing and co-financing by truly local stakeholders, which is an indicator for ownership.

CGSs and commodity-based innovation development funds are insufficiently integrated into an overall national system in which financing from different public and private sources is available for balanced funding of both strategic and adaptive research, as well as funding for pre-extension. The need to make funds available at the local level for enhanced stakeholder participation and R&D impact has trade-offs in terms of: effectiveness and up-scaling options, relatively high transaction costs, plus limited competition due to insufficient numbers of qualified service providers, which entails a risk of competition between capacities to access funds rather than competition for quality services (to be) provided.

The main opportunities for strengthening local stakeholder-driven funding mechanisms for agricultural innovation can be found in the intensified involvement in fund management by farmers' organizations and private-sector actors. This can only be achieved by developing PPPs that are successful in generating a climate of trust between public and private sector actors. A comprehensive analysis of the roles of all stakeholders in the local agricultural innovation system often results in a clearer identification of the real and most urgent needs for technological, organizational and institutional change. One of the institutional innovations required is the participatory establishment of more effective stakeholder-driven funding mechanisms for agricultural R&D. Capacity development of the key stakeholders, particularly the FOs, in managing the funding mechanisms and in M&E of the effectiveness of the agricultural research and extension services provided, is envisaged as contributing significantly to the real strengthening of the entire AIS.

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Foreword

The agricultural innovation system, with its main functions of generation, diffusion and applying knowledge, means that many different stakeholders have a role to play. Farmers, input suppliers, marketing and processing firms all require services in order to apply knowledge and obtain information to address local, national and global demands, which are expressed through “economic chains”. This study covers the provision of agricultural research and extension services (R&D). The public sector used to be the main global player in supplying these R&D services. However, market liberalization, increasing demand for scarce public resources, greater emphasis on the rural and urban poor as a main target group for the public sector, as well as urbanization itself, has caused rapid change. These changes not only refer to a broader variety of service providers (public sector, private sector, and farmers’ organizations themselves), but also in terms of demand articulation for services and corresponding resource allocation control by the clients of these services. The demand for technology innovation and adoption is no longer coming from a single source (farmers), but is increasingly originating from a variety of sources (i.e. different stakeholders in the agricultural “production value chain”), resulting in much more complex and intertwined “agricultural innovation systems”, rather than the traditional “linear” chain of technology generation, diffusion and dissemination.

As a consequence, R&D services are being financed from an increasing variety of sources, not just from the public sector. In addition, public resources (finance, human and infrastructure) are also increasingly controlled by a variety of stakeholders other than the public sector itself. The agricultural innovation system approach is increasingly leading to the realization that the parties involved are jointly responsible for agricultural innovation. In many cases this has subsequently resulted in a shared client and stakeholder responsibility for the planning and financing, as well as implementing and monitoring of the activities that enhance agricultural innovation and speed up adoption.

At the same time, several countries have implemented new governance-enhancing strategies such as the decentralization of public administration, the deconcentration of services provision and the empowerment of communities and farmers’ organizations, which have led to a drastically changing environment for providing agricultural services. Innovative financing mechanisms have been developed that take account of these evolving strategies. The common

denominator is the fact that the national level is no longer directly involved in financing and controlling services at the local level, but is only indirectly involved through the treasury. Most of these new mechanisms also include a much closer involvement of both public and private stakeholders, as well as a stronger influence of the beneficiaries.

A key challenge of the new funding mechanisms is the dependability and sustainability of service provision. The drive for financial sustainability in this context often leads to the exclusion of certain groups (the poor, women, landless farmers, etc.), while the inclusiveness of access to R&D services is another major concern.

The sustainability of deconcentrated service provision is a challenge for both the social and economic sectors involved in rural development. In this study, lessons from both these sectors have been used to develop viable options for R&D funding mechanisms.

Acronyms and abbreviations

AD	Assistant Director
ADB	African Development Bank
AEZ	Agro-ecological zone
AFD	<i>Agence Française de Développement</i>
AG	<i>Assemblée Générale</i>
AGM	Annual General Meeting
AGRAN	<i>Appui à la Gestion de la Recherche Agricole Nationale</i>
AIC	<i>Association Interprofessionnelle du Coton</i> (private sector cotton association)
AIS	Agricultural Innovation System
AKIS	Agricultural Knowledge and Information System
AKSCG	Association of Kilimanjaro Specialty Coffee Growers
APE	<i>Agent Permanent de l'Etat</i>
APEB	<i>Association Professionnelle des Egreneurs du Bénin</i>
APNV	<i>Approche Participative au Niveau Village</i>
APRRA	<i>Appui aux Programmes Régionaux de Recherche Agricole</i>
APRA	<i>Appui aux Programmes de Recherche Agricole</i>
APV	<i>Agent Polyvalent de Vulgarisation</i>
APVC	Agricultural Product Value Chain
AR4D	Agricultural Research for Development
ARC	Agricultural Research Centre
ARDI	Agricultural Research and Development Institute
ARF	Agricultural Research Fund
ARI	Agricultural Research Institute
AS	<i>Atelier Scientifique</i>
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASDP	Agriculture Sector Development Programme
ASDS	Agriculture Sector Development Strategy
ASLM	Agricultural Sector Lead Ministry
ASSP	Agricultural Services Support Programme
BE	<i>Bureau Exécutif</i>
BM	<i>Banque Mondiale</i>
BMZ	<i>Ministère Fédéral de la Coopération et du Développement Economique</i>
BOAD	<i>Banque Ouest Africaine de Développement</i>
CA	<i>Conseil d'Administration</i>
CABI	International Centre for Biological Sciences, UK

CAGIA	<i>Coopérative d'Approvisionnement et de Gestion des Intrants Agricoles</i>
CAO	Chief Administrative Officer
CAP	Commission d'Approbation des Protocoles
CARDER	<i>Centres d'Action Régionale pour le Développement Rural</i>
CATF	Competitive Agricultural Technology fund
CBD	Coffee Berry Disease
CBDD	<i>Centre Béninois du Développement Durable</i>
CC	<i>Comité de Concertation</i>
CED	Chief Executive Director
CeRPA	Zonal Centre for agricultural promotion in Benin (<i>Centre Régional de la Promotion Agricole</i>)
CFDT	<i>Compagnie Française de Développement des Textiles</i>
CFM	Consolidated Funding Mechanism
CGRA	<i>Cycle de Gestion de la Recherche Agricole</i>
CGS	Competitive Grant Scheme
CIPC	International Coffee Research Institute, Portugal
CIRAD	<i>Centre de Coopération Internationale et Recherche Agronomique pour le Développement, France</i>
CLCAM	<i>Caisse Locale de Crédit Agricole Mutuel</i>
CLR	Coffee Leaf Rust
CMT	Council Management Team
CORDEMA	Client-Oriented Research and Development Management Approach
CORMA	Client-Oriented Research Management Approach
COSTECH	Commission for Science and Technology
CRRA	<i>Centre Régional de Recherche Agricole</i>
CRRD	<i>Comité Régional de Recherche et de Développement</i>
CSPR	<i>Centrale de Sécurisation des Paiements et des Recouvrements</i>
CSRD	<i>Comité Sectoriel de Recherche et de Développement</i>
CZARF	Central Zone Agricultural Research Fund
DAC	District Advisory Committee
DADP	District Agricultural Development Plan
DALDO	District Agricultural and Livestock Development Officer
DANIDA	<i>L'Agence Danoise d'Assistance au Développement</i>
DARH	<i>Direction Administrative et des Ressources Humaines</i>
DCI	Development Cooperation Ireland
DDF	District Development Fund
DDP	District Development Programme
DED	District Executive Director
DESC	District Extension Steering Committee
DEV	KIT's Department Development, Policy and Practice (<i>Département Politiques et Pratiques du Développement</i>)
DICAF	<i>Direction du Conseil Agricole et de la Formation Operationnelle</i>
DIFOV	<i>Direction de la Formation Opérationnelle et de la Vulgarisation Agricole</i> (National Agricultural Extension Service, presently DICAF)
DPDR	<i>Déclaration de Politique de Développement Rural</i>

DPE	<i>Direction chargée de la Programmation et de l'Evaluation</i>
DRA	<i>Direction de la Recherche Agronomique</i>
DRD	Division of Research and Development
DRF	<i>Direction des Ressources Financières</i>
DRT	Department of Research and Training (formerly DRD)
DS	<i>Direction Scientifique</i>
ECU	European Union Community
EDF	European Development Fund
EU	European Union
EZARDI	Eastern Zone Agricultural Research & Development Institute
EZARDF	Eastern Zone Agricultural Research and Development Fund
EZCORE	Eastern Zone Client Oriented Research and Extension
FA/UniPar	<i>Faculté d'Agronomie de l'Université de Parakou</i>
FCRA	<i>Fonds Compétitif de Recherche Agricole, Bénin</i>
FF	Farmer Forum
FFS	Farmer Field School
FG	Farmer Group
FIDA	<i>Fonds International pour le Développement Agricole</i>
FO	Farmer Organization
FSA/UAC	<i>Faculté des Sciences Agronomiques de l'Université d'Abomey Calavi</i>
FUPRO	<i>Fédération des Unions de Producteurs du Bénin</i> (Federation of Producer Unions in Benin)
GC	<i>Groupe de Contact</i>
GoT	Government of Tanzania
GPDIA	<i>Groupement Professionnel des Distributeurs d'Intrants</i>
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
GV	<i>Groupement Villageois</i>
IARC	International Agricultural Research Centre
IDA	International Development Association
IDF	Innovation Development Fund
IFPRI	International Food Policy Research Institute
INRAB	<i>Institut National des Recherche Agricoles du Bénin</i> , National Agricultural Research Institute of Benin
INSAE	<i>Institut National des Statistiques et de l'Analyse Economique</i>
IPR	Intellectual Property Rights
ISNAR	International Service for National Agricultural Research (IFPRI Programme)
KIT	Royal Tropical Institute, the Netherlands
KNCU	Kilimanjaro Native Cooperative Union
LGA	Local Government (Authority)
LGCDG	Local Government Capital Development Grant
LZARF	Lake Zone Agricultural Research Fund
M&E	Monitoring and Evaluation
MAEP	<i>Ministère de l'Agriculture, de l'Elevage et de la Pêche</i>
MAFS	Ministry of Agriculture and Food Security
MCU	Mbozi Cooperative Union
MDG	Millenium Development Goal

MDR	<i>Ministère du Développement Rural</i>
MoA	Ministry of Agriculture
MRC	<i>Expérimentation en Milieu Réel sous gestion Chercheur</i>
MRP	<i>Expérimentation en Milieu réel sous gestion Paysan</i>
MT	(NARF) Management Team
MVIWATA	National network of farmers' groups in Tanzania
NAIS	National Agriculture Innovation System
NALRM	National Agricultural and Livestock Research Masterplan (Tanzania)
NARF	National Agricultural Research Fund
NARI	National Agricultural Research Institute
NARMP	National Agricultural Research Master Plan (<i>Plan Directeur de la Recherche Agricole, Bénin</i>)
NARS	National Agricultural Research System
NEPAD	New Partnership for African Development
NGO	Non-Governmental Organization
O&OD	Opportunities and Obstacles to Development
ONG	<i>Organisations Non-Gouvernementales</i>
OP	<i>Organisation Paysanne</i>
PAC	Proposal Approval Committee (<i>Commission d'Approbation des Protocoles</i>)
PADSA	<i>Programme d'Appui au Développement du Secteur Agricole</i>
PADSE	<i>Projet d'Amélioration et de Diversification des Systèmes d'Exploitation</i>
PAPA	<i>Programme Analyse de Politique Agricole</i>
PARFC	<i>Projet d'Appui à la Réforme de la Filière Coton</i>
PARP	<i>Projet d'Appui à la Recherche Participative</i>
PDRA	<i>Plan Directeur de la Recherche Agricole</i>
PDRT	<i>Projet de Développement des Racines et Tubercules</i>
PI	Principal Investigator
PIB	<i>Produit Intérieur Brut</i>
PLWHA	People Living with HIV/AIDS
PME	<i>Petites et Moyennes Entreprises</i>
PPM	Public-Private Mix
PPP	Public-Private Partnership (Partenariat Public-Privé)
PSC	Project Steering Committee
PTAA	<i>Programme de Technologie Agricole et Alimentaire</i>
R&D	Research and Development (Recherche-Développement)
RAMR	<i>Recherche Appliquée en Milieu Réel</i>
RDR	<i>Responsable du Développement Rural</i>
RELOs	District Research and Extension Liaison Officers
RNE	Royal Netherlands Embassy
RV	<i>Recherche de Validation (prévulgarisation)</i>
S&E	<i>Suivi et Evaluation</i>
SAC	<i>Suivi-Appui-Conseil</i>
SAS	<i>Service d'Animation Scientifique</i>
SDDR	<i>Schéma Directeur du Développement Rural</i>

SDI	<i>Société de Distribution Intercontinental</i> (input supply company in Benin)
SEPO	<i>Succès – Echec – Potentialités – Obstacles</i> (SWOT)
SNRA	<i>Système National de Recherche Agricole</i>
SNVA	<i>Système National de Vulgarisation Agricole</i>
SONAPRA	<i>Société Nationale pour la Promotion Agricole</i>
SP	<i>Secrétariat Permanent</i>
SPAAR	Special Programme for African Agricultural Research
SSA	Sub-Saharan Africa
STABEX	<i>Stabilisation des recettes d'exportation</i>
SUA	Sokoine Agricultural University
SW	Scientific Workshop
TaCRI	Tanzania Coffee Research Institute
TAFORI	Tanzania Forestry Research Institute
TAGREF	Tanzania Agricultural Research Endowment Fund
TAP	Technical Advisory Panel
TARDEF	Tanzania Agricultural Research and Development Fund
TARP II	Tanzania Agricultural Research Project Phase II
TCA	Tanzania Coffee Association
TCB	Tanzania Coffee Board
TCCIA	Tanzania Chamber of Commerce, Industry and Agriculture
TCGA	Tanzania Coffee Growers' Association
TORITA	Tobacco Research Institute of Tanzania
TORs	Terms of Reference
TPRI	Tanzania Pesticides Research Institute
TRIT	Tea Research Institute of Tanzania
TSPV	<i>Technicien Spécialisé en Production Végétale</i>
UAC	<i>Université d'Abomey-Calavi</i>
UCP	<i>Unions Communales des Producteurs, District Producers' Unions</i>
UDP	<i>Unions Départementales des Producteurs, Provincial Producers' Unions</i>
UNCDF	United Nations Capital Development Fund
UNIPAR	<i>Université de Parakou</i>
UPSE	<i>Unité de Planification, de Suivi et Evaluation</i>
URT	United Republic of Tanzania
WB	World Bank
ZARDI	Zonal Agricultural Research and Development Institute
ZARDEF	Zonal Agricultural Research and Development Fund
ZARF	Zonal Agricultural Research Fund
ZRDC	Zonal Research and Development Committee
ZEC	Zonal Executive Committee
ZMC	Zonal (ZARF) Management Committee
ZMT	Zonal Management Team
ZTC	Zonal Technical Committee

1 Introduction

1.1 Rationale

Over the last decade of the 20th century the agricultural sector in Sub-Saharan Africa (SSA) has seen fundamental changes as a result of the democratization of governance, economic liberalization, privatization of functions previously ensured by the public sector, as well as the decentralization and deconcentration of public services. This implies a revision of the roles played by public services, private sector roles and civil society organizations' responsibilities. Both client and user organizations now play a more prominent role in planning and monitoring services and products provided by the public and private sectors. User organizations have been given additional powers not only by changing the institutional arrangements but also in developing new funding mechanisms for service provision e.g. by creating multi-stakeholder-controlled funds (agricultural technology and innovation development funds (IDFs), social funds, etc.). Decentralization in most countries also makes regional, district and sub-district government entities essential actors in managing service provision at the local level.

The millennium development goals (MDGs) cannot be achieved without addressing the needs of the poor and other stakeholders at the local level. MDG-1 aims to reduce rural poverty and food insecurity by 50% in 2015, and relies heavily on accelerated agricultural development. The New Partnership for African Development's (NEPAD) approach to achieving this, which is followed in most SSA countries, comprises:

- i Decentralization of governments and services through farmer and community empowerment.
- ii Emphasis on pluralistic agricultural development.
- iii A multi-stakeholder approach to agricultural R&D.

The overall challenges in relation to the decentralization of governance, deconcentration of services and empowerment of communities are:

- i Local governments (LGs) are to play a more important role in financing services, with these services becoming accountable to LGs rather than to the national level within the sector.

- ii Within sector-wide programmes, financial resources are to be deconcentrated to the local level, either directly within the sector or indirectly through local government¹.
- iii Communities and other client organizations (farmers, entrepreneurs, patients, parents etc.) must gain stronger influence on service provision through participatory planning, monitoring and evaluation (M&E), involvement in decisions on resource allocation, and also through direct contributions and participation, including the (partial) financing of services.

Agricultural development requires innovation, which is best achieved in an “agricultural innovation systems (AIS) approach” comprising technological, institutional, as well as organizational innovation (Chema et al., 2003). Sustainable funding of socially inclusive public and private services for technology generation, diffusion and application requires the development and application of innovative concepts. The gradual separation of financing and implementation of R&D challenges the efficiency and effectiveness of service providers, while the sustainability of the public research system is at stake. The declining and unstable public funding for agricultural R&D in many SSA countries, including Tanzania and Benin, has led to severe financial shortages, degradation of research capacity, erratic starts and termination of R&D programmes and projects, as well as a continuous brain-drain of qualified researchers out of the public system (KARI, 1998).

Although additional public-sector funding is crucial and urgent, these developments call for new institutional arrangements and institutions, and contribute to an enabling environment for overcoming public-sector bureaucracies. The decentralization of governance and deconcentration of services has led to a new generation of funding mechanisms that are challenged by the need to bring service provision even closer to the client innovators in a more efficient and effective manner. Stakeholder-driven funding mechanisms at the local level that focus on adaptive research and dissemination, as well as on the application of new technologies, processes and institutions, are being developed in many countries. Such funding mechanisms aim at establishing different forms of public-private financing, cost sharing and contracting of service provision.

The authors of this review of experiences in Tanzania and Benin believe that significant progress has been made in these two countries in exploring and testing innovative mechanisms for decentralized implementation and financing of agricultural services, especially for applied agricultural research and for local/zonal level funds and in Public-Private Partnerships (PPPs). In their “trail-blazing” effort of identifying more effective and efficient institutional arrangements for agricultural R&D, practitioners in these two countries have identified many issues and learned several important lessons. This study attempts to inventory the current status of innovative funding mechanisms involving greater stakeholder involvement and control in Tanzania and Benin,

¹ With local services being assigned more responsibility for financial management and the private sector playing a more important role in service provision.

identify new challenges and issues, and suggest possible alternative responses to these. The authors are convinced that the experience of “learning by doing” laid out in this study is relevant not just to the two focus countries, but is of importance to many other countries in SSA which are also attempting to revitalize their AIS for greater effectiveness and impact, particularly to help achieve the NEPAD objectives and the MDGs.

1.2 This bulletin

The Royal Tropical Institute (KIT) has been involved in institutional and capacity development of national agricultural research and extension organizations since the mid-1990s. Programmes are aimed at preparing these organizations to operate under newly emerging market conditions, function on a performance and quality basis and are more user-responsive. These programmes form the logical continuation of support that was first started in the 1980s, which promoted farmer participation in agricultural research and extension services. The methodological approaches developed were underpinned by the theory of the social organization of innovation (Agricultural Innovation Systems) that gradually replaced the concept of innovation as a stepwise process (Transfer of Technologies); this resulted in the effective involvement of various stakeholders (Engel, 1997).

This bulletin describes and analyzes experiences with stakeholder-driven funding mechanisms for (parts of) the AIS. The cases presented are from Tanzania and Benin, which are both in SSA. Although reference is made to national funding mechanisms, the emphasis is on local, i.e. sub-national stakeholder-driven funding schemes for innovation. Although an AIS has many functions, such as generating technology, disseminating and applying technology, as well as many direct and indirect activities, this bulletin focuses particularly on the demand-driven R&D function of the AIS and the corresponding funding mechanisms.

Chapters 1, 2 and 3 provide a general background and context, as well as presenting the methodology used for analysing and identifying best practices and lessons learned with stakeholder-driven funding mechanisms. Several cases of competitive grant schemes (CGSs) at various levels in the public administration as well as public-private partnerships (PPPs) and “matching fund” schemes aiming at contributing to agricultural innovation have been documented in Tanzania and Benin (Chapters 4 and 5). Chapters 6 and 7 formulate the conclusions of the cases, best practices and lessons learned. A list of further reading on the topic has also been provided, while Annex 1 contains a summary of existing guidelines for establishing and managing stakeholder-driven funding mechanisms.

1.3 Concepts

A national agricultural innovation system (NAIS) is a set of organizations and individuals involved in generating, disseminating, adapting and using

knowledge of socioeconomic significance and the institutional contexts that govern the way interactions and processes take place (Hall et al., 2001). The emphasis on acquiring knowledge and capacity development by all stakeholders in the AIS, both through formal and/or codified information flows and through direct interaction between the stakeholders, are elements that distinguish the AIS concept from the more traditional Agricultural Knowledge and Information Systems (AKIS) concept. If a NAIS is more application oriented, it encompasses and requires both the more diffusion-oriented AKIS (or AKIS/RD), as well as the National Agricultural Research System's (NARS) focus on generating knowledge.

A NAIS involves both private and public stakeholders and fulfils many functions. For purposes of analysis and priority setting, NAIS normally identifies several economic commodity chains, sometimes called Agricultural Product Value Chains (APVCs) or distinguishes a number of specific geographic areas at sub-national level (Rivera et al., 2005). In relation to financial resources a distinction is made between:

- i Policy making and steering for resource allocation.
- ii Financing of R&D, (making resources available)².
- iii Ways of making the funds available to the implementers (the funding mechanisms)³.
- iv The actual allocation or provision of funds. Funding mechanisms for innovation-oriented R&D are consequently organized accordingly i.e. following geographic boundaries or with a focus on specific commodities. In practice this approach applies more to short-term applied and adaptive R&D, while the more cross-cutting and longer-term basic and strategic research is often addressed at the national, and supranational or regional and international levels.

Funding mechanisms can therefore focus on different levels in a national agricultural R&D system but can also concentrate on different functions and themes and/or emphasize certain values. Funding mechanisms addressing the NAIS and its key functions of generating, disseminating and applying knowledge are rare in the agricultural sector, but are on the increase. This trend originates from the industrial sector, where R&D programmes focus on innovation. The multi-stakeholder innovation platforms that have been established in many countries, mostly at national or sector level, operate funds that could be characterized as IDFs. An agricultural IDF is a fund that enhances agricultural innovation through the competitive funding of projects submitted and approved by the actors and stakeholders in the innovation system for generating, disseminating and applying new technologies. IDFs increasingly facilitate the matching of the public investment component of generating and disseminating agricultural technologies with technology development and diffusion through private investment. IDFs are thus a vehicle for developing PPPs. A potential public-private partnership can contribute to the AIS by

² Financing mechanisms refer to generating funds.

³ Funding mechanisms refer to the way in which financial resources are provided.

generating, disseminating and applying new technologies on the basis of joint action, financing and complementarity.

Public funding for agricultural development and innovation at national and local levels are mostly allocated or tied funds and are not part of mainstream funding for rural development activities. Although the implementation of agricultural sector development activities is increasingly becoming deconcentrated to the LG level, the agricultural sector is rarely fully integrated into the LG budget. Two main reasons are often given:

- i The agricultural sector, particularly public agricultural service provision, is undergoing a dramatic change from an inward looking and upwardly accountable system to a more outward and forward-looking downwardly accountable system.
- ii Agricultural priorities are rarely emerging as priorities through a comprehensive participatory planning process.

These same reasons are given for the practice of having specific R&D funds, as well as separate budget lines or allocations for innovation development, which are not part of general block grants for agriculture or rural development funds.

2 Funding mechanisms

2.1 Funding agricultural innovation

Agricultural technology generation has tremendous potential for contributing to rural development, and hence poverty alleviation, if it addresses true farmer-felt needs and long-term strategic issues. Many technologies are increasingly becoming “private goods” and less “common pool” goods, partly due to rapid increases in the urban non-agricultural population, which lead to pressure on public-sector resources being allocated to agriculture⁴. Achieving household food security and generating income are the main livelihood strategies for most farmers. Generating an income through agricultural production means developing strong product chains for either local or national/international markets. The private actors in APVCs are increasingly becoming partners and financiers of innovation development. At the same time, the public sector maintains its role in the general innovation process and APVCs in particular, with the overall aim of poverty reduction and sustainable production. An important characteristic of successful AISs is that they are holistic and multi-stakeholder driven; consequently they require funding mechanisms that empower all stakeholders in the system, while avoiding fragmentation and poor coordination of innovation-oriented activities.

Innovation-driven development requires investment from both the public and the private sectors and hence pluralistic networking is required; agricultural productivity is enhanced through agricultural partnerships, leading to prosperity (WB, 2004). New investments in agricultural research have largely relied on four key strategies (WB, 1996; in Rivera et al., 2005):

- i Financing research capacity development in NARIs and universities.
- ii CGSs in order to diversify service provision.
- iii Strengthening intellectual property rights (IPR) and/or moving away from public goods provision in order to attract private funding.
- iv Inter-institutional partnerships for financing and implementing agricultural R&D.

⁴ Public goods have a low extractability (i.e. degree to which users can be excluded from using them through payments) and low subtractability (i.e. degree to which the use of goods or services subtract from the user’s ability to obtain the same product). Private goods are more exclusive and subtractable, while common-pool goods, such as most natural resources, have a high subtractability and low excludability (Wennink et al., 2003).

Three main factors contribute to the emphasis on developing alternative funding mechanisms for agricultural R&D. Firstly there is the changing role of the state, which is generally moving away from implementing R&D and towards a more regulatory function, while emphasizing efficiency and effectiveness of service provision. Secondly, the financial crisis experienced in many SSA countries over the last decade influences the priorities of the public sector. Lastly, many NAIS stakeholders blame the lack of agricultural development on the agricultural innovation system's failure to deliver (Akroyd, 2003). All three contribute to an AIS that is in crisis and is being blamed for the stagnation of agriculture in SSA. In truth, this is essentially caused by the lack of a level playing field between the developed and the developing countries, with inadequacies in market access, infrastructure and credit services. The rapidly changing global context is also exposing the inability of NARSs to identify new challenges along APVCs in terms of added value, marketing opportunities and quality requirements. This further underscores the need to operate more effectively in a multi-stakeholder environment.

The differing roles of the public and private sectors in agricultural service provision have been facilitated by the recent separation between the financing and provision functions in the AIS (Akroyd, 2003). Although the need for change is widely accepted and stakeholders are focusing on innovative institutional development in the AIS, different actors do have different perspectives in relation to more appropriate funding mechanisms (see Table 1 below). Two major questions can be raised in this context:

- i Depending on the public or private nature of the goods, should the private or the public sector finance the services to be provided?
- ii Who should provide these services to achieve efficiency and effectiveness?

Table 1 Different stakeholder groups' goals in searching for alternative funding mechanisms

Stakeholder cluster	Main aims of alternative funding mechanisms
Policy makers and donors	Redirect policies, lower research costs, strengthen participation, and enhance R&D
Research managers	Additional sources of revenue, national/international partnership development, increased outcomes and impact
Client stakeholders	Performance and output for innovation accelerated development and increased incomes

Source: Adapted from Echeverría, 1998.

In the end all stakeholders demand an enhanced performance of the AIS. Four main criteria can be used to measure the performance of alternative funding mechanisms for innovation development:

- i Effectiveness.
- ii Efficiency.
- iii "Additionality" and sustainability of resources.
- iv Contributions to institutional change (Echeverría, 1998).

Table 2 highlights several possible indicators for measuring these criteria.

Table 2 Criteria and indicators for the performance of stakeholder-driven funding schemes

Criteria	Indicator
Effectiveness	<ul style="list-style-type: none"> Factor productivity (crop/animal yields, labour productivity)
Impact of research results attributed to alternative funding	<ul style="list-style-type: none"> Trends in natural resource degradation (soil erosion rates) Social rate of return to research (percentage) Adoption rate for research results (shape of adoption curve) Absolute and relative poverty rates (percentage)
Efficiency	<ul style="list-style-type: none"> Share of contracted research within project activities (% of total)
Costs of conducting research through different funding mechanisms	<ul style="list-style-type: none"> Number of projects completed within a year after the planned date Number of projects that have achieved the planned results Ratio of realized and planned time for project implementation (%) Length of project cycle (number of months) Total cost of funding scheme programme management and administration (as a % of total scheme funds for research)
Additionality and sustainability of resources	<ul style="list-style-type: none"> Increase in total national agricultural research budget, in real terms, over a defined period of time (annual growth rate) Contribution to R&D financing from different sources (% in time) Share of total amount of the fund over the total national agricultural research budget (% over time) Institutional change. Local, national and international partnerships in a given year (number) Share of funds compared to block grants (% over time) Share of private-sector funding in financing (%) Share of funded projects addressing local/national priorities (%) Ownership, client-orientation, participation and equity parameters

Source: Adapted from Echeverría, 1998.

Addressing farmer-felt needs can become more effective if the clients in a particular setting also have decision-making power over the operational planning of agricultural research, extension and training activities, either directly or through the local government structure. One of the most effective ways to enhance the demand-driven emphasis of agricultural research and extension in particular (and rural service provision in general) is to make changes in the flow of funds such that the demand side (clients and users) control and allocate the resources available for R&D activities based on their own views of the most urgent and binding constraints. Ideally, financial resources should be made available directly to farmer organizations (representing the ultimate beneficiaries). However, this is often not easily implemented for the following reasons:

- Demands for information and innovation go beyond the requirements of farmer organizations only. This is especially the case with funding mechanisms, which aim to stimulate generation, adaptation and adoption of

agricultural innovations, i.e. the social organization of innovation (GTZ-Agriservice, 2004).

- Concerns regarding quality control of the results as well as for the coherence of activities to be undertaken with national and long-term policies, both demand an analysis of the proposed activities from more than just the user organization's point of view.
- Queries exist in relation to the representativeness of many farmer organizations and related social equity issues.
- Farmer and other user organizations often have insufficient capacity to manage resources for research and extension activities or do not fulfil the criteria for organizations that can be subjected to a proper financial audit.

Similarly, public funds for enterprise development and innovation will often not be given directly to the private sector, as the main objective is to stimulate public-private partnerships on a co-financing basis.

2.2 Alternative funding mechanisms

Agricultural service provision such as in research and extension has traditionally been financed by the public sector. Changes in national priority setting due to increasing urbanization and financial pressures, the evolving role of the state, as well as the perceived failure of many public service providers, have all resulted in reduced state financing and emphasis on improved cost-effectiveness (Akroyd, 2003). These last two items have resulted in several new developments:

- i Reducing state financing
 - Changes in the type of financing mechanisms, less dependent on the public sector.
 - Increased cost-recovery through levies and user charges, including contract research, co-financing, etc.
 - In some cases developments have moved towards complete state withdrawal or privatization of service provision.
- ii Improving cost-effectiveness
 - The development of funding mechanisms that form an alternative to the common public block grants.
 - Improved priority setting (e.g. better scoring methods, cost-benefit approaches).
 - Making services more user-oriented e.g. through Client-Oriented Research Management (CORMA).
 - Improving financial management and efficiency of service provision (CGSs, "Endowment" Funds, Outsourcing, Internal restructuring).

Although Agricultural Research for Development (AR4D), a key function of the AIS, was designed primarily for innovation it does not automatically result in innovation on farms because adoption of new technology may depend on many other factors. AR4D in SSA is still largely financed by the public sector,

although others actors are increasingly drawn into a variety of funding mechanisms for R&D at the local level. This development is demonstrated by a range of new research financing mechanisms with an increasing role for the private sector (AKIS, 1999; Akroyd, 2003; Gill and Carney, 1999; Echeverría, et al., 1998; Pardey et al., 2004). Examples include:

- i **Common block grants** or “core” funding from the national treasury for public agricultural R&D institutions. Although research institutions have a certain latitude in using block grants, such funds are increasingly used to pay for fixed costs, such as salaries and infrastructure operating costs, and leave little room for research implementation. In addition, resource allocations to different research priorities and activities are often not very transparent to the outside world.
- ii **Competitive Grant Schemes:** in a CGS, public funds are only released indirectly for research through a fund that is not directly controlled by the researchers involved. Researchers can only draw from such funds on the basis of high-quality proposals for specific research activities, which compete for financing in a more transparent way. CGSs can also be used for “matching grants” provided by the private sector and then form a transition to cost-sharing between the public and private sector.
- iii **Cost-sharing arrangements** exist in different forms and at different levels. Farmers can contribute to the costs of on-farm research by providing their own resources such as land, labour and knowledge, while the public sector provides the financial resources needed. A special form of cost sharing is a PPP in which both sectors contribute to a set of activities in a complementary way that involves joint planning and action. Contract research is often a sort of cost-sharing arrangement between service provider and contractor, as all costs of the services being provided are seldom covered in a research contract.
- iv **Contract research** is a funding mechanism in which clients such as local governments, NGOs or private entrepreneurs, contract a public institution to provide a particular R&D service. Research contracts are often tendered competitively through public procurement procedures and are based on detailed Terms of Reference (TORs). Contracts cover all costs, including salaries, all overheads and, in some cases, even profits.
- v **Privatization** is an extreme form of contract research in which an R&D organization becomes completely dependent on research contracts from both the public and private sector and is competing with other private R&D companies through tender procedures. In some cases there is privatization by default, when research centres are forced to focus on “self-funding” due to a lack of block grants. In these cases research centres often establish production farms or other non-research-essential activities to generate internal revenue. This process also sometimes leads to smaller, more flexible and decentralized AISs (Tabor et al., 1998).

CGSs can be financed in several ways, e.g. pooled resources from different public institutions (national and local governments, and donors), joint public and private sector funding, and “levies” or other user charges that are mostly

related to a particular APVC or special theme (such as environmental levies). However, it is important to emphasize that CGSs and other special funding mechanisms are not an alternative to public investment in the agricultural sector. Public support for agricultural R&D in SSA needs to be urgently and significantly increased, including the contributions to local (competitive) funds. In some cases, public funds could also be used more effectively to attract private funds. In addition to different funding mechanisms, new financing arrangements are also being implemented within the public sector, mostly at national level. Bilateral and multi-lateral donors are increasingly working with the national treasury to develop “basket” funds to finance agricultural R&D as a subsector, rather than on the basis of many separately financed projects. A special form of this funding is a research “endowment” fund, which is a sizable sum of money that is set aside as a financial investment, with the returns being used to fund research. In order to be of significance, such a fund should amount to around 20 times the annual national R&D expenses.

2.3 Rationale for alternative funding mechanisms

The main advantage of block grants is that there are no transaction costs required, such as with operating CGSs. However, it can be argued that to improve cost-effectiveness of agricultural research and extension, block-grant-financed services will also have to be made more client-oriented, which would involve additional costs (e.g. introducing/strengthening on-farm research, participatory approaches, group-based adaptive research, an increased role for other stakeholders, and accountability and client-empowerment through vouchers (Akroyd, 2003; WB, 1999).

The rationale for introducing CGSs is manifold, but some of the key motives for establishing local CGSs are (WB, 1999; WB, 2004; URT, 2005) the need to:

- Focus research efforts on **high-priority research** topics with the best available scientific expertise, which may involve redirecting the focus of research institutions or programmes.
- Promote research **partnerships** and collaboration aimed at research and technological “spill-ins”. Cooperation with universities and other higher learning institutions is often a major aim for CGSs, as is collaboration with public or private extension at the local level or creating synergy between organizations that are endowed with other resources, by promoting partnerships between different sectors and types of organizations.
- Reorient research, extension and training activities based on clients’ priorities through **demand-driven mechanisms** that include stakeholder participation, particularly user organizations that promote change and innovation.
- Improve the financial **efficiency** of research by making better use of existing capacity, providing transparency and leveraging resources through co-financing requirements. Involving a broader range of stakeholders can lead to cost-effectiveness through achieving synergy.
- Increase **total funding and reliability of funding** for research through the accountability and visibility appeal of CGSs to potential financiers and by

linking to non-traditional sources of funding (e.g. trusts, endowments, commodity levy funds, district development funds, etc.).

- Enhance the **quality** of services provided by making funds available to all potential agricultural service providers on the basis of competition and by introducing quality considerations, rigorous technical screening, stimulating innovative research, as well as capacity development in the context of “peer reviews”.
- Expand the **base of research providers** and opportunities as well as building on comparative advantages by including NGOs and the private sector, involving other AIS stakeholders beyond the NARS, national/international networking and public-private partnerships, thus more effectively mobilizing the total existing research and extension capacity.

A similar efficiency and effectiveness rationale exists in relation to the role of the public and private sectors in agricultural service provision. The CGS can provide an important tool in bringing the public and private sectors together in co-financed programmes that combine private-sector efficiency and produce public goods and public support for non-tradable staple foods that are produced by smallholders and consumed by the poor, as well as on health, safety and environmental issues (AKIS, 1999).

2.4 Diversity in funding mechanisms

2.4.1 COMPETITIVE GRANT SCHEMES

A CGS is a funding mechanism to provide grants for achieving a particular R&D objective on the basis of competition between proposals that must meet certain approval criteria. Depending on the specific objectives and established criteria for a CGS, different overall goals are possible. However, two important objectives are:

- Competition between proposals from researchers from within a particular R&D organization or between different R&D organizations and/or other stakeholders in the AIS. Such competition is expected to lead to quality improvement, with the emphasis on performance-based management and effective M&E.
- Collaboration enhancement within the AIS, which can include strengthening communications, with the emphasis on demand-led research, re-enforced linkages with national, regional and international research systems, public-private partnerships, capacity building through learning-by-doing, etc.

For these reasons funding arrangements have been set up at different levels (international, national and sub-national), and with a wide variety of mechanisms to ensure stakeholder control. For agricultural research and extension the terminology to describe the mechanisms varies and includes terms such as “competitive funding”, “competitive grants”, “competitive agricultural technology funds”, and “competitive grant schemes” (SPAAR, 2004; WB, 1999; WB, 2004). The last term, abbreviated as CGS, is used throughout this report, since it best covers the array of innovation systems funding based on

interaction and cooperation between social actors and it goes beyond mere agricultural research.

Local funding for agricultural research and extension can also be part of larger funds at local levels that are used to promote rural development on a demand-driven basis. Most experience with CGSs has been gained at international and national levels, and little attention is being paid in the literature to experience with funds that are being managed at sub-national, zonal or local levels. The first generation of CGSs emphasized the need to improve efficiency through competition between R&D proposals while stimulating collaboration within the NARS. A second generation of CGSs further emphasized the demand-side focus, with clearer roles for other stakeholders in the AIS. As a consequence these funds became more focused on adaptive research and dissemination, either at the local level or within a commodity context.

Two types of stakeholder-driven R&D funds are generally distinguished:

- Multi-stakeholder-controlled funds that are dedicated to agricultural technology development, with representatives of different stakeholders in the governing structures of the funds. Normally these funds are managed at a higher level than local government. Examples are: the Agricultural Research Fund in Kenya (Chema, 1999) and the National Fund for Agricultural and Agrifood Research in Senegal (ISNAR, 2004). Examples of sub-national or zonal funds that have been established and are currently operational are: Zonal Agricultural Research Funds in Tanzania (Heemskerk et al., 2003) and Competitive Agricultural Funding Mechanisms in Benin (Arodokoun et al., 2003).
- Development funds at the local (district or commune) level, with a development focus that is wider than agricultural technology innovation. Examples are: Woreda Development Funds (UNCDF), with a component for agricultural research in Ethiopia; District Development Funds in Tanzania and Uganda, with an allocated budget component for agricultural R&D.

Some of the advantages and disadvantages of CGSs have already been identified, although many of these can be debated and will depend on the particular context in which the schemes operate (see Table 3).

In order to avoid some of the potential disadvantages of CGSs, which can become pitfalls if not attended to, a number of conditions have been formulated for the successful implementation of competitive grants (WB, 2005; Foster et al., 1997; Blackie et al., 2003). Examples include:

- Have realistic expectations and clear priorities for the CGS funds, avoiding demand-driven fragmentation.
- Establish efficient and, above all, transparent management systems with multi-stakeholder involvement, including an independent, influential and well-respected “Board” that decides on grant awards.
- Link the CGS budget and the projects it supports to a performance agreement based on policy objectives.
- Enhance the financial sustainability of the fund through all available options,

Table 3 Advantages and disadvantages of CGSs

Advantages	Disadvantages
<p>Increases research effectiveness by directing resources to the most productive scientists by merit; focuses on national research priorities; increases flexibility to concentrate on newly emerging national/regional priority issues; promotes a goal-oriented and demand-driven NARS; strengthens links between research and extension organizations, agricultural production and agricultural policies; provides expert feedback to researchers' proposals; and, the objectivity of the competitive process improves research quality</p>	<p>Reduces research flexibility to focus on additional (not open for competition) priorities when researchers discover new research needs; low institutionalization; lack of support for human capital development and new research infrastructure.</p>
<p>Increases research efficiency by reducing direct costs via competition and co-financing schemes; minimizes duplication of effort, the lack of accountability of research resources, and under-utilization of infrastructure by providing funds for operating costs; strengthens links among national, regional, and international public and private research organizations; promotes spill-ins.</p>	<p>Higher funding uncertainty could affect long-term projects and reduce confidence of research staff; high transaction costs involved with grant seeking, proposal writing and implementation reports resulting in less time for research; higher risks involved when research consortia include less-well-known organizations.</p>
<p>More diversification of funding by involving scientists from outside the traditional organizations; promotes a "systems" approach; may mobilize additional funding.</p>	<p>Limited nature of funding (funds only operational costs with a lack of support for core budget salaries and maintenance of research facilities); short-term funding, lack of support for medium- to long-term research; low sustainability of funding when national constituency is weak and external funding sources dry up (unless it is an endowment); Needs a minimum "market size", i.e. a research system with a minimum number of qualified competitors (larger countries probably best suited); significant legal, financial, administrative and technical costs for establishment and administration.</p>
<p>Induces institutional change in the national innovation system, separating research policy, funding and implementation</p>	<p>May be biased towards strong research organizations; "equity issue" due to lack of competitive capacity of poorer/smaller organizations; possibility of "rent-seeking" in the process of allocating resources to research.</p>

Source: Echeverría, 1998.

such as cost-sharing with grantees, specifically identifying the role of the public and private sectors and their responsibility for financing, exploiting complementarity with other sources of funding.

- Avoid all off-budget aid by donors as this undermines the CGS funding mechanism.
- Ensure a sufficiently pluralistic service provision to allow for competition (which is harder at the local level).

2.4.2 RESEARCH PARTNERSHIPS

Stakeholder collaboration within AISs can be enhanced through partnerships for joint action that aim at simultaneous change. Research partnerships are collaborative arrangements for conducting joint research between two or more organizations (public or private), involving the exchange/sharing of resources in order to attain a common goal. PPPs often involve a contractual arrangement whereby, according to a shared ownership agreement, the resources, risks and rewards of both the public agency and the private company are pooled to create greater efficiency in manufacturing and providing public or private goods (Hartwich et al., 2003).

Co-financing and cost-sharing arrangements between stakeholders can contribute to joint ownership of the results of these common activities. These inter-stakeholder arrangements can be very informal, e.g. a simple Memorandum of Understanding, or in the form of a complex legal contract. Contracts between stakeholders in the innovation system, for example, can be between research and extension projects, the public and private sectors, research institutes and local government authorities, public extension and farmer organizations, etc. In relation to agricultural R&D, a PPP is a special form of cost-sharing that is defined as a collaborative effort between the public and private sectors in which each sector contributes to the planning, resources, and activities needed to accomplish a shared objective.

PPPs represent a broad spectrum of relationships oriented towards developing and disseminating public or private goods. Relationship examples include:

1. The private sector influences the planning process in the publicly funded component of the AIS.
2. The private sector contracts public-sector research and extension institutions to achieve agricultural innovations, either directly (through direct research contracts) or indirectly by contributing to CGSs or other research funds.
3. The public sector contracts the private sector to provide agricultural services, which are often referred to as “outsourcing”.
4. The private sector provides services for directly enhancing the innovation process (as in privatized research and extension services).

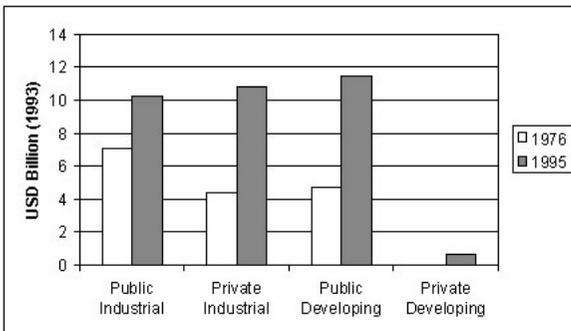
Many countries have experience with PPPs for innovation development at different levels and in different modes of distributing functions and responsibilities among the stakeholders involved (Wennink et al., 2003;

Hartwich et al., 2003; Vieira et al., 2002). The rationale for building such partnerships is often complex. Indeed, why would a private company become involved in a partnership with government? Why would public agents link up with profit-based entities? The most common answer is “only when the partners clearly see a common interest”. The partners’ goals may be very different but sometimes there may be a “common interest space”, where activities could respond to objectives that are shared by the partners. However, discovering such common interests is difficult because they are often well hidden and frequently remain undetected (Hartwich et al., 2003).

PPPs are often seen as an optimal policy approach to promoting social and economic developments that bring together the efficiency, flexibility, and competence of the private sector with the accountability, long-term perspectives, and social interests of the public sector. While such partnerships blur the classic distinction between the public and private sectors in a modern economy, they also enhance the potential for both efficient and equitable production and distribution of social benefits. The public and private sectors are often also complementary in agricultural technology development as the public sector emphasizes efforts to address poverty, equity and environmental management issues, while the private sector underscores the importance of the economic performance of the commodity chain or the production and processing system. In a well-functioning and client-responsive AIS, the public support for smallholder agricultural production innovation needs to be matched to the private-sector support for innovations in the rest of the APVC.

Although the opportunities for PPPs are frequently high, the investment in these partnerships is currently still low in most developing countries. Investment by the private sector in agricultural R&D in developing countries is low, but is growing (Figure 1). The relatively high investment in R&D by the public sectors in these countries represents an opportunity to draw private investment into the AIS through various forms of co-financing and cost sharing.

Figure 1 Public and private agricultural R&D investment, 1976-1995, for developing and industrialized countries



Source: Pardey and Beintema, 2001.

Although the public and private sectors may have large or small common interest spaces, major obstacles can cause PPPs to fail, or never get off the ground. Some of the most common constraints facing PPPs concern the fact that potential partners are:

- i Challenged by fundamentally different incentives and feel they are in competition, although this is mostly unwarranted.
- ii Do not adequately account for and minimize the direct and hidden costs of a collaborative research investment.
- iii Are hindered by persistent negative perceptions of each other.
- iv Constrained by the lack of creative organizational mechanisms to reduce intersectoral competition for key assets and resources.
- v Impeded by the limited availability of information on successful working models of PPPs (Wennink et al., 2003).

2.5 Issues and challenges for local funding mechanisms

2.5.1 OVERVIEW

Local funding mechanisms contributing to agricultural innovation generally aim at wider and more balanced stakeholder participation when generating, disseminating and applying agricultural technologies. This should lead to greater efficiency in resource use for innovation and, in particular, to the efficiency of agricultural R&D, mainly as a result of separating the funding from the implementation of the research. The incremental costs of evaluating grant proposals (mainly for CGSs) and the costs of lobbying the granting agencies and private sector for co-financing are expected to be more than compensated by the reduced information costs required for research results and the reduction in resource misallocation (Alston et al., 1996). Alternative funding mechanisms are also expected to steer away from near-market-research programmes, which should be left largely to the private sector, although this may come at a certain social cost for the poor. There is also the risk that the move from producer-oriented research to agribusiness-oriented research, which is partly caused by the co-financing arrangements with the private sector, will draw the public sector too much into the production of private goods.

The enhanced effectiveness of alternative local funding mechanisms relates to the sustainability of the research infrastructure, capacity development of both those involved in the demand and the supply, as well as improved research relevance leading to enhanced agricultural innovation and economic performance. Alternative funding mechanisms such as CGSs and PPPs assume that a certain technology development management capacity is available from the different stakeholders in the AIS, both on the supply and the demand side, which can lead to a reasonable balance. A major threat in such systems is that either supply (public research) dominates, leading to a lack of confidence and ownership by the demand side, or that other stakeholders become so dominant that public Agricultural Research Centres (ARCs) succumb before they can build the capacity required to face the new situation; this has happened in

several Latin-American countries (e.g. SIBTA, 2005). Local funding mechanisms can also be seen as an opportunity to strengthen “value-based” research in established research organizations. The emphasis can be placed on AR4D and on the need for clear demand articulation and user participation, multi-disciplinarity and attention for environmental and gender issues.

The key question is therefore whether local funding mechanisms such as CGSs can provide the answer to the need to develop multi-stakeholder partnerships for adaptive research and extension for agricultural innovation. True partnership means sharing resources between stakeholders for the same purpose. Can public funds made available through CGSs at the local level be instrumental in attracting (or act as “seed money” for) private funding from the farming entrepreneurial sector, as well as from marketing and processing enterprises?

2.5.2 STAKEHOLDER-DRIVEN CGSs

The key principles for stakeholder-driven, and often local, CGSs that aim at AR4D through adaptive research are (ASARECA, 2005):

- i Demand articulation.
- ii End-user participation.
- iii Multi-stakeholder involvement and multi-disciplinarity.
- iv Attention to environmental and gender issues.
- v Specific plans for technology upscaling in an agricultural innovation context and the necessary communication strategies.

In relation to the required demand articulation, a tension exists between the need to have both clear TORs and limited initial capacity on the demand side, plus the corresponding necessity to start the process through learning-by-doing. This also applies to participation by users, farms and companies in the whole planning, implementation and monitoring process. Stakeholder-driven funding mechanisms aim at strengthening multi-stakeholder partnerships between public and privates sector actors as well as farmer organizations, while emphasizing the need for a multi-disciplinary approach in the local agricultural research system. Partnerships also need to link to the NARSs as well as international networks for the required blending of local and international knowledge and information. Some of these partnerships, particularly at national and international levels, develop only over longer periods, which might be contradictory to the shorter-term nature of adaptive research and pre-extension programmes.

Other issues relate to the AR4D focus and the emphasis on adaptive research. Stakeholder priorities may be established in a participatory way, but do they include the priorities of vulnerable groups who have no real influence? Funding mechanisms that aim at a level of co-financing that is either deliberate (PPPs) or inherent (in most CGSs, salary costs of the actual researchers are not financed) will tend to exclude research, which aims at the poorest of the poor or emphasizes socioeconomic issues. Some funds may include specific measures,

allocations or budget lines to compensate for this shortfall. Requirements for co-financing could lead to unfair competition between actors in the well-established public and private sectors on the one hand, and farmers' and civil society organizations on the other (AKIS, 1999). Although these issues mainly relate to national agricultural funds they may also apply to local competitive funds. Important differences between national and local funds are that in the latter, there is often:

- More emphasis on adaptive research and extension, and less on links to strategic research, and links with other research and training institutions.
- Emphasis on participation, synergy and cost-effectiveness by involving local stakeholders.
- Reliability of funding through enhanced ownership.

An important issue is the role of the public sector in stakeholder-driven funding mechanisms such as CGSs. The public-sector focus on public goods for small-scale farmers will probably not attract private funding, while farmers and small-scale entrepreneurs themselves are unable to share substantially in the costs of technology development. On the other hand, the private sector will mostly concentrate on the generation of private goods⁵, which will probably have no benefit for the resource-poor. An important question to be resolved is: will it be feasible to establish funding schemes through which public financing attracts co-financing by the private sector, and what will these policy and institutional contexts look like at national level? Questions regarding local-level funds relate to the scale and the transaction costs, the level of competition, as well as mechanisms for independent quality control. A major aim of competitive funding for adaptive research is to involve non-research stakeholders. Is this feasible at the present capacity levels and what specific demands exist in terms of downward accountability and participation?

2.5.3 STAKEHOLDER-DRIVEN CO-FINANCING AND COST-SHARING ARRANGEMENTS

Local cost-sharing and co-financing arrangements aim at strengthening collaboration through developing joint responsibility by building on the comparative advantage of different stakeholders. A PPP groups together the efficiency, flexibility and competence of the private sector with the accountable, long-term perspective and social interests of the public sector. Such arrangements can potentially result in both efficient and equitable production plus distribution of social benefits. At the local level, both public and private-sector stakeholders in an AIS can be brought together in an innovation platform or "market place", in order to address R&D bottlenecks and policy constraints – such interaction can lead to jointly financed activities.

The public sector is generally not sufficiently market-effective and resource-efficient. On the other hand, the private sector often underestimates the importance of equity issues, but is more efficient in using resources, as well as

⁵ In the context of national priorities this should not be financed by the public sector.

being market effective. The challenge is to optimize the roles of the public and private sectors, as well as that of civil society in the public-private mix for agricultural innovation at different levels, i.e. addressing the issues of subsidiarity. Can market and government failures, particularly those relating to equity and efficiency, be avoided through PPPs? How can multi-stakeholder partnerships be monitored? Will M&E take place through clearly established regulations, or through joint control and self-monitoring? Can a balance be achieved in the partnership, even if partners have very different power bases or capacities? Can small-scale producers still influence a public-private partnership, and how then is participation organized?

Cases studies from Benin and Tanzania will be used to address some of the questions raised in Sections 2.5.2 and 2.5.3.

3 Methodology

3.1 Context

In 2003 KIT researchers focused attention on user organizations through a review of the literature on strengthening Farmer Organizations (FOs) in AIS, and conducted a first exploratory survey of the role played by some FOs in the AIS of Tanzania and Benin (Heemskerk and Wennink, 2003). A literature review of experiences gained concerning private participation in public service provision also allowed researchers to identify key issues that could form the subject of future research (Wennink et al., 2003). The results of these studies became the basis for developing a four-year action-research programme (2004-2007) that aims to contribute to the establishment of demand-driven services for agricultural innovation development in rural and peri-urban areas in SSA as part of poverty reduction and pro-poor strategies. The case studies contributed to the development of guidelines based on lessons learned and best practices, and led to publications that nurture the debate among policy makers and agricultural innovation practitioners. The approaches used for the case studies have the following in common: a systems perspective, a multi-stakeholder analysis and an actor-orientation with effective participation of the key stakeholders involved.

The focus of the current study is on developing examples of best practice and lessons learned, with respect to CGSs and public-private funding partnerships in innovation development. “Lessons learned” in this context refers to experience gained by the various stakeholders involved in managing the funds that allow them to accelerate the achievement of the related R&D objectives. “Best practices” are defined as practices that have proven to be effective in various situations, and that can be easily applied elsewhere without generating significant incremental costs.

3.2 Partnerships with NARSs

KIT’s partners in NARSs in Tanzania and Benin elaborated the respective case studies. In Tanzania the Department of Research and Training (DRT) under the Ministry of Agriculture and Food Security (MAFS) elaborated cases of competitive grant funds. Both the staff from national headquarters as well as researchers from the zones analyzed the performance of the national (NARF) and zonal agricultural research funds (ZARFs). DRT headquarters also conducted an analysis of the public-private mix in funding the recently privatized coffee research in Tanzania.

In Benin staff at the scientific section of the national agricultural research institute (INRAB) elaborated the case of competitive research grant mechanisms for two eco-regional research programmes. Staff at the department for agricultural extension and professional training (DIFOV) under the Ministry of Agriculture (MAEP) developed the case on public and private funding of cotton sector extension.

Apart from being a central part of the case study analysis, the multi-stakeholder approach was also used in a workshop review of the cases by a wide variety of national stakeholders.

3.3 Analytical framework

The various case studies analyzed the two types of funds (CGSs and PPPs) and the key issues and challenges involved in agricultural development. These studies aimed to identify lessons learned, plus best practices concerning the contribution of CGSs and public-private mixed funding for agricultural innovation aimed at poverty alleviation and the role of stakeholders in managing these funds, with special emphasis on the role of users (e.g. farmers' organizations).

This analysis was conducted from several different angles: as seen by the demand-side (e.g. farmers, district staff and NGOs), by the supply side (public and private service providers) and on the basis of successful innovation cases.

The effectiveness, efficiency, impact, sustainability and ownership of the funds in relation to agricultural technological innovation development were all evaluated. The indicators developed for this are as follows:

- **Effectiveness** and impact: focusing on innovations generated, allocation efficiency, client satisfaction, adoption of technologies, equity, and economic growth.
- **Efficiency**: input-output relations for different innovation development activities.
- **Sustainability**: matching grants, mechanisms for establishing endowments, institutionalization.
- **Institutional change**: ownership, equity and stakeholder participation.

A more detailed checklist was prepared between the partners involved in the study for the CGSs and public-private funding schemes; these were also made country-specific.

3.4 Case study review

The following case studies were prepared and analyzed:

- National Agricultural Research Fund in Tanzania.
- Zonal Agricultural Research Funds in Tanzania.
- District Agricultural Research Funds in Tanzania's Eastern Zone.
- Competitive Funds for Zonal Research Programmes in Benin.

- Privatized Coffee Research Institute (TaCRI) in Tanzania.
- Public and private funding of agricultural extension in Benin.

These case studies were discussed at a multi-stakeholder meeting representing the Tanzania NAIS in order to gain feedback on the situation analysis. During the meeting, the participants prepared a “Strengths, Weaknesses, Opportunities and Threats” (SWOT) analysis of the funding mechanisms and this provided input when preparing the best practices and lessons learned. At a workshop (held November 2004 in Morogoro, Tanzania), stakeholders from both the public and private sectors plus representatives from farmer organizations met to discuss the various financing mechanisms for agricultural technology innovation processes in Tanzania. An overview was presented of the various financing mechanisms of agricultural R&D or innovation in Tanzania.

In both Benin cases, extensive interviews were held with stakeholders at all levels during a workshop, organized in Benin by the national agricultural research institute in 2004, for reviewing the various competitive research grant mechanisms. This workshop was held before the case study was conducted and provided additional input. The results on public and private funding of cotton extension were disseminated among all Cotton Association (AIC) member organizations. A group of stakeholders conducted a SWOT analysis of the Competitive Funding Mechanism (INRAB researchers, CARDER, universities and farmers) and the public-private partnership for cotton extension (Private input supply company, Ministry of Agriculture, DIFOV, CARDER, APV, UDP/UCP and village groups of farmers).

4 Competitive grant schemes

4.1 The National Agricultural Research Fund in Tanzania

Ninatubu Lema and Barnabas Kapange

4.1.1 POLICY CONTEXT

In order to strengthen agricultural research, in the early 1990s the Government of Tanzania (GoT) sought strategies to improve research funding and encourage greater contributions, and hence ownership by stakeholders (USAID-Bureau of Africa, 2000). These strategies included privatizing agricultural research on cash crops (tea, coffee, tobacco, etc.). The GoT then set up the NARF, after consultations with stakeholders and development partners such as the Special Programme for African Agricultural Research (SPAAR), the International Service for National Agricultural Research (ISNAR) and the World Bank.

Agricultural research funding in Tanzania is characterized by the following main problems (Kingamkono et al., 2003):

1. *Low “research intensity”*: in 2000, Tanzania invested 0.38% of Agricultural GDP, less than half the average (0.85%) projected for Africa as a whole in 1995 (Beintema et al., 2003), and considerably less than the recent NEPAD recommendation of 1.50% of AgGDP.
2. *Erratic and undependable funding*: From 1996-2000 both government and donor funding to DRD fluctuated dramatically. This was further aggravated by the inconsistency between budget allocations and actual disbursements and the fact that more than two-thirds of total GoT funding is recurrent budget, which covers mainly salaries and benefits.
3. *High donor dependency*: In 2000 over half of the NARS revenue in Tanzania came from the World Bank and other donors (Beintema et al., 2003). Out of a total allocation of USD 25 million under the six-year-donor-supported second phase Tanzania Agricultural Research Project (TARP II), approximately USD 20 million came from the World Bank, African Development Bank and various bilateral donors such as the governments of the Netherlands, Germany, and the United Kingdom.

The National Agricultural Research Plan for the period 1998-2003 (TARP II) aimed to strengthen the financial sustainability of DRT and its seven Zonal Agricultural Research and Development Institutes (ZARDIs). In order to stimulate the pursuit of options for local diversification of R&D funding sources, a high level of financial autonomy by the ZARDIs was institutionalized

by establishing ZARFs, and by approving local revenue retention, without having to return these funds to the treasury. As a result, the variety of funding sources was expanded considerably and various funding mechanisms were developed (Kingamkono et al., 2003). Some of these sources are listed below.

1. *Central Government block grants*: Government budget support has remained far below expected levels due to general budget constraints and low priorities for agricultural research. A recent shift to basket support by many of the bilateral and multilateral donors and the expected approval of the proposed multi-donor supported Agricultural Sector Development Program (ASDP) is expected to improve the level and reliability of public research funding.
2. *Donor subventions*: Research implementation in DRT largely depends on donor funds. However, support has been declining and could further fall due to changes in policies and new financing mechanisms such as basket funding and general budget support (URT, 2005a).
3. *Commodity levies*: Research funding through commodity levies or cesses is relatively high in Tanzania, compared to other African countries. In 1996-2000, these sources accounted for 12% of total DRT funding. More than half of this amount was from the cashew sector (Beintema et al., 2003), the remainder being derived from cotton, tea, coffee, sugarcane and tobacco. The international market dynamics affecting commodity levies, which are percentages of export values, make these revenues volatile and their contribution to research erratic. In some cases the existence of cash crop development funds (also based on crop levies) has led to the privatization of research institutes such as those for tea (TRIT), tobacco (TORITA) and coffee (TaCRI).
4. *Collaborative research*: Nationally, DRT collaborates closely with a large number of government and not-for-profit organizations such as the Tanzania Forestry Research Institute (TAFORI), Commission for Science and Technology (COSTECH), Tanzania Pesticides Research Institute (TPRI), Sokoine University of Agriculture (SUA), TaCRI and TRIT. International linkages include collaboration with the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and other regional networks, as well as many of the international agricultural research centres (IARCs). Collaboration is mostly through bilateral agreements and partnership agreements at the national level.
5. *Contract research*: Institutionalized contract research started in the Lake Zone in 1995 and has since increased throughout all research zones; it contributes substantially to research project funding. Revenues vary from year to year and depend on opportunities in each zone and how well the particular institute competes with other service providers.
6. *NARF and ZARFs*: NARF was first set up in 1991 and became operational in 1993. The fund was intended to support priority research identified in the National Agricultural Research Master Plan. Between 1998 and 2002, decentralized ZARFs were established in all zones, involving local stakeholders and research institutes, and receiving contributions from district councils, NGOs, and international donors.

4.1.2 INSTITUTIONAL SETTING AND GOVERNANCE

The NARF was open to all (qualified) players in the entire NARS and could allocate grants for collaborative and contract research, post-graduate training, travel for researchers, publication costs and honoraria for visiting scientists, while also including an award scheme for research achievement. The NARF had a Management Team (MT) consisting of eight members until 1999, with only three non-public-sector members. However, since 1999, apart from DRT staff the MT includes the Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA), farmers' representatives and agribusiness and women's groups. This resulted in a minority that originated from the public sector. Members were appointed by MAFS for an open-ended period.

The NARF was expected to lead to a Consolidated Funding Mechanism (CFM) that would provide sufficient and sustained financing for all priority agricultural research by pooling financial resources and effort. The NARF's main objectives were to foster greater pluralism in the research system as well as enhancing the quality of research by encouraging competition, and facilitating collaboration with allied research institutions, notably Sokoine University of Agriculture (SUA). Greater stakeholder participation was envisaged to enhance quality and cost-effectiveness, also by supporting demand-driven and client-oriented research. This would improve accountancy procedures, which would thus satisfy the standards of transparency and accountability expected by both stakeholders in the innovation system and research financiers (government, donors and others), and would permit reliable tracking and monitoring of multiple sources and uses of funds provided for research. At the same time the NARF would provide a mechanism for funding highly innovative and applied agricultural research and development initiatives.

4.1.3 PLANNING, MONITORING AND EVALUATION

National and zonal workshops were held to set national priorities, but real stakeholder participation was generally limited. Farmers' representatives were often individuals or from informal groups and not always from established structures, such as the National Network of Farmers Groups in Tanzania⁶ (MVIWATA), although this has improved over time. The NARF Secretariat and the ZARDIs advertized "Calls for research proposals" for NARF and passed information on to all eligible scientists. National or international researchers could submit research proposals under the following conditions:

- i Their research focused on national priorities.
- ii There was a link between the lead researcher and a specified network of institutions.
- iii The researcher had the required technical qualifications.

NARF did not provide funds for preparing draft papers or writing full proposals. Scientists applied to the NARF Secretariat using open and transparent

⁶ In Swahili: Mtandao wa Vikundi vya Wakulima Tanzania.

procedures detailed in a NARF operational manual. Three peer scientists reviewed each proposal. Reviewers, who were paid a fee, were given three days to study each proposal; then they met for a day to write a joint report.

Out of 107 proposals submitted, 54 were transferred to the zones because they were addressing zonal issues (ZARFs were at the infant stage of operation). The remaining 53 were peer-reviewed and 22 were approved for funding; 31 proposals did not meet the NARF criteria. Of the 22 approved research proposals (i.e. a 21% approval rate), only 18 were actually funded due to a lack of funds; 17 projects were successfully completed (Table 4).

Table 4 Summary of NARF research project proposals up to 2004

Research programme	Submitted proposals (no.)	Approved projects (no.)	Final reports submitted (no.)
Crops	61	10	8
Livestock	25	5	4
Special programmes	21	7	5
Total	107	22	17

The NARF Secretariat was responsible for M&E of all grant-funded projects. The Chief Administrative Officer (CAO) was assisted by a number of external experts for M&E. Projects were monitored on the basis of quarterly financial and technical progress reports (i.e. achievements and planned activities), an annual review at the “Zonal Internal Programme Review”, and an annual M&E visit to all projects. The Principal Investigator (PI) also had to submit a final report that included: policy-related conclusions, recommendations relating to any new technologies arising out of the research, recommendations for future projects in the research area and suggested areas for impact assessment.

4.1.4 INSTITUTIONAL CHANGE

The NARF aimed at empowering the demand side of agricultural technology as well as stimulating multi-disciplinary and multi-stakeholder implementation of agricultural research. Although different stakeholders were represented in the NARF MT, very few were actually involved in decision-making throughout the various phases of the project cycle (Table 5) and real involvement by farmers and consumers was low.

4.1.5 EFFICIENCY AND SUSTAINABILITY

Although there were many pledges from both government and donors to financially support NARF, actual payments did not match these pledges. During the period 1989-1997 total financial resources amounted to USD 621 000. This increased to USD 1.4 million in the 1998-2004 period, which constitutes less than 2% of total donor funding for research, while government funding is only 10%. Not only were NARF funds well below target, they were also not disbursed efficiently. Projects received funding to the approved level, but extreme caution

Table 5 How decisions were made that affected various aspects of NARF

	Initiation	Administrative pre-screening	Scientific pre-screening	Peer review	Final project selection	Management	M & E
Researchers	Yes	No	No	Yes	No	Yes	Yes
Policy makers	No	No	Yes	No	Yes	Yes	Yes
Administrators	No	Yes	No	No	Yes	Yes	Yes
Small farmers	Indirect	No	No	No	No	No	No
Large farmers	No	No	No	No	No	No	No
Agro industry	No	No	No	No	Yes	Yes	No
Consumers	No	No	No	No	No	No	No

Source: Chema (<http://www.odi.org.uk/rpeg/chema/chema9.pdf>).

to minimize fraud delayed the smooth flow of funds. NARF aimed to have projects funded and ready to start within six months from the application date and to have projects well underway within one year. This proved very difficult to achieve and as a result scientists lost interest in the fund. The pre-screening stage (57%) and subsequent reaction by the PI (22%) caused the main delays (Chema, 1999).

All research proposals that received grants under NARF had a DRT scientist as PI and hence all disbursements were to DRT institutes. NARF “transaction costs” included resources required to maintain the Secretariat, advertise, conduct pre-screening and peer reviews, cover expenses associated with MT meetings and meet the M&E costs. The total NARF overhead costs amounted to 37% of the total disbursed amount, which was well above the targeted 10%, with M&E costs constituting 87% of the total transaction costs.

Contract research with districts, development programmes, private companies, and farmer groups took place in both the Lake and Northern Zones, and “salary top-ups” were provided by the cashew and other export crop development funds. In comparison with these, NARF was considered to be a poor and frustrating source of funding because it did not provide financing for salaries or institutes’ overhead costs, gave few researcher incentives (although some researchers obtained PhDs), and had slow disbursements.

4.1.6 EFFECTIVENESS AND RELEVANCE

Several publications have resulted from completed NARF projects and some contributed to solving farmer problems. No formal economic analysis of research project impact or of the overall impact of NARF has been undertaken. Three researchers completed their PhDs while several of the PIs acquired research skills that subsequently permitted them to embark on PhD studies upon completion of their NARF projects. This suggests that the quality of the research was high, as it qualified for PhD dissertations. Quality enhancement was due to the peer review of final proposals, which proved to be one of the more efficient aspects of NARF. Although transparency of funding improved, it

did not seem to lead to higher efficiency. The involvement by a variety of stakeholders in the NARF MT, as well as the joint elaboration of research proposals, contributed to somewhat greater pluralism and demand-driven focus within the AIS. However, joint research activities between DRT and SUA remained limited, despite the elaborated Memorandum of Understanding and SUA's prominent role in the NARF MT.

4.1.7 LESSONS LEARNED

A major shortcoming of the NARF was that it contributed little to enhancing the level of collaboration between scientists at the various NARS institutions. Collaboration within the NARS remained weak, although this was one of NARF's main objectives. This was also partly caused by the inadequate M&E by NARF management.

A number of lessons were learned, leading to the following recommendations.

- The staff of two key NARS organizations (DRT and SUA) need to further improve their linkages to enhance collaboration in running NARF and at research project level.
- MAFS/DRT should develop stronger links with other institutions of higher learning such as Mzumbe University, TAFORI and the University of Dar es Salaam.
- There is a need to establish a Tanzania Agricultural Research Endowment Fund (TAGREF), with contributions from several stakeholders, including the GoT and the private sector⁷. The interest accrued from significant investment in an endowment fund could then be used to finance research projects in a sustainable fashion.
- Qualified NARF (to be renamed TARDEF) secretariat staff need to be appointed for fund management, and the secretariat needs to be independent and available on a full-time basis for the required tasks (or the management of the fund needs to be outsourced to a private-sector agency).
- Stakeholder representatives (e.g. farmers) need to be from established organizations, such as MVIWATA and should not be individual farmers.
- Members of the MT who have no experience in NARF management need to be trained in their role and funds need to be allocated for such capacity development.

4.2 Zonal agricultural research funds in Tanzania

Ninatubu Lema and Barnabas Kapange⁸

4.2.1 POLICY CONTEXT

Decentralization in most countries, including Tanzania, makes local governments and other local stakeholders key actors in the demand and

⁷ Private-sector contributions could be directly to TAGREF or through co-financing at research project level.

⁸ With contributions by Vincent Akulumuka on the Eastern Zone Agricultural Research Fund.

management of agricultural service provision. Demand-driven service provision started with the district development programmes in the Lake and Eastern Zones that “earmarked” funds for agricultural development. These funds were mostly used to procure services from research institutions regarding agricultural planning, capacity building, on-farm testing and technology promotion. As part of the decentralization of agricultural research, MAFS and other stakeholders (e.g. NGOs, commodity board representatives) developed zonal agricultural research priorities. This was accompanied by legislation that permitted ZARDIs⁹ to retain 95%¹⁰ of the revenue accrued from their own commercial activities and allowed development partners to negotiate directly with local authorities concerning AR4D support.

Stimulated by this increased financial autonomy, ZARDIs soon began to experiment with diversification of research funding. This included:

- Contract research: ZARDI researchers could no longer provide research services without institutional “contracts”. Research fees paid by clients (District Governments, international NGO’s, rural development projects, pesticide companies, etc.) were divided between the ZARDI (institutional overhead), researchers (incentives) and research programmes (continuity).
- Changing institutional overhead fees: this fee was included in all research contracts with commodity cess funds, regional research networks, donor programmes, etc. The fee was around 10% of the research project cost and special DSA rates¹¹ were paid to researchers (as incentives).
- Cost-sharing arrangements: in some cases farmer groups paid up to 10% of the research operational costs.
- Miscellaneous revenue: this was generated from house and land rents, plus the sale of produce, planting materials and seeds.

In addition to the above, some of the development partners expressed a preference for concentrating their assistance in small geographical areas. A number of development partners who were reluctant to contribute to the NARF were interested in investing in the zonal research systems. From the onset the intention was to encourage research on important local problems not adequately addressed at national level, and ensure that such research was managed entirely by researchers and stakeholders at the zonal level. This led to the start of the ZARFs, managed by a team of local stakeholders.

The Lake, Central and Northern Zones started ZARFs in 1998. The Eastern Zone had a slightly different approach; funds were initially fully managed by the district council (see also Section 4.3). However, in 2001/2002 stakeholders in the Eastern Zone also agreed to create a multi-stakeholder controlled research fund, the Eastern Zone Agricultural Research Fund (EZARF). The main objective in starting ZARFs in the Lake and Central zones was to improve the

⁹ There are seven “agro-ecological zones” following regional boundaries (with 3-4 regions per zone).

¹⁰ With 5% submitted to the national level DRT headquarters.

¹¹ Not national daily allowance rates, but so-called UNDP rates.

livelihood of stakeholders by promoting sustainable, environmentally friendly, gender sensitive, socially and economically viable research that was demand-driven. The intent was that stakeholders and particularly farmers “would be in the driver’s seat”. Another important objective was to capture all possible local and international sources of funding for agricultural R&D in the Lake and Central zones. However, this did not quite happen because the Zonal Management Team was appointed by zonal and regional authorities and not by farmers or other key stakeholders. Therefore, the ZARFs were not fully owned by local stakeholders.

Box 1 A ZARF Example: The Eastern Zone Agricultural Research Fund

The EZARF focuses on zonal priorities and demand-driven research, while the NARF concentrates on national or cross-zonal strategic research. The EZARF headquarters is the Zonal Office of the Directorate of Research and Development (DRD) in the Eastern Zone Agricultural Research and Development Institute (EZARDI), at the Agricultural Research Institute Ilonga, Kilosa. Institutions both inside and outside the Eastern Zone that deal with research, extension and development are eligible for receiving EZARF financial support.

EZARF has five management levels: the board of trustees, the zonal management committee (ZMC), the zonal executive committee (ZEC), the zonal technical committee (ZTC) and the secretariat. The stakeholders attending the general meeting appoint the 13-member Board of Trustees. The Board’s main functions are fundraising, advising the ZEC on the EZARF, preparing stakeholder meetings and facilitating the implementation of the stakeholders’ resolutions, presenting the annual budget and audited accounts, and appointing and commissioning the EZARF secretariat. The multi-stakeholder management committee, MC, manages the EZARF in terms of planning, proposal approval, accounting, and M&E. The ZEC is the central committee to the EZARF and its main functions are to supervise ZTC activities related to EZARF. In addition, the ZEC approves the ZARF budget on behalf of the Board and disburses funds to all research activities approved by ZTC. The ZEC reports to the Board of Trustees. The ZTC is an EZARF advisory committee on technical matters regarding research activities that are funded by EZARF.

Source: Vincent Akulumuka, 2004.

4.2.2 INSTITUTIONAL SETTING AND GOVERNANCE

ZARFs aimed at bringing the research funds closer to the clients. The greater use and support of the funds by the conventional donors as well as the local communities would be stimulated. ZARFs elaborated a zone-specific constitution and guidelines based on the national NARF manual. This led to some uniformity in ZARF structures, although differences in the guidelines remained in terms of:

- i Relations with the districts.
- ii Independence from the ZARDIs.
- iii Treatment of overhead costs.

Each ZARF was managed by a multi-stakeholder management committee, which was expected to consist of five public-sector and six non-public-sector representatives, equally distributed among men and women, who would be

accountable to the ZEC (i.e. multi-stakeholder ZECs for the publicly-funded zonal research system). However, the composition of the ZMCs varied greatly between zones (see Table 6). The ZMC elects the chairperson and the ZMC secretariat is in the office of the Zonal Director Research and Development (director of the ZARDI). The ZARFs were to acquire funds, for example from districts, the private sector, local (and international) donors, etc. The funds acquired within the zone were expected to be matched (100%) with funds from second-phase Tanzania Agricultural Research Projects (TARP II), which were financed by the World Bank and other donors. However, the actual matching ratio soon dropped to 50%.

Table 6 Recommended and actual composition of ZARF-MC

Category	Recommendation	Selected Zones			
		Northern	Central	Lake	Eastern
Researcher community	1	3		2	4
Extension	1	1	2	1	
Farmers	3-5	2		3	2
NGOs	2	2		1	2
Development partners	2	1		1	
Input suppliers	1	0		1	1
Cooperatives		1			
Private sector		1			2
Colleges/Universities	1	0		1	
Local Government Authority	None, as such		3		2
<i>Women</i>	<i>1/3 of total</i>	<i>0</i>	<i>0</i>	<i>5</i>	<i>n.a.</i>
<i>Total</i>	<i>11-13</i>	<i>11</i>	<i>5</i>	<i>15</i>	<i>13</i>

4.2.3 PLANNING, MONITORING AND EVALUATION

Based on zonal priorities determined in multi-stakeholder meetings and sanctioned by the multi-stakeholder ZEC, the ZMC secretariat launches an annual call for proposals through district offices and notice boards (not yet via newspapers or other mass media). Final proposals mainly come from researchers at the ZARDIs, with some submitted by researchers from external, “recognized” institutions such as universities and a few NGOs. However, the initial ideas often originate from District Councils and District Agricultural Offices and are subsequently elaborated by zonal researchers. No funds are presently available for writing proposals. Although the lead investigator was mostly a zonal researcher, collaborators were often from districts, extension services and/or NGOs.

The ZMC secretariat screens the proposals for “responsiveness” to the call for proposals (priorities) and administrative completeness, and distributes qualifying proposals to peer reviewers, who are selected from an established list of zonal researchers (supposedly three reviewers, but often fewer). Proposals are peer-reviewed for their technical content and their relevance in

addressing zonal priorities. The ZMC members that in some zones (Lake and Northern) have been trained for this purpose, subsequently score the peer-reviewed proposals based on criteria stipulated in the ZARF guidelines such as:

- i Convincing evidence of client demand.
- ii Contribution by requesting clients and partners.
- iii Adoptability of expected output.
- iv Realism of the budgets and total amount requested.
- v Perceived efficiency in solving the identified problem, quality of the log-frame and capacity of the proposed team.
- vi Competitiveness and final ranking of the proposal.

The ZMC ranks the proposals on the basis of their final scores and, in view of the available funds, presents qualifying proposals for final approval to the ZEC. Over the years the annual financial ceiling for each approved research project has been reduced to USD 3 000-6 000¹², with a maximum duration of three years.

Approved proposals have a simplified logical framework with SMART¹³ indicators, which makes it possible to easily monitor the progress of activities. Although intended to be more frequent, one or more MC members visit the research project in the field once a year, (in the Lake and Northern Zone, the proposed twice-a-year visits could not be achieved). For reasons of transparency and objectivity, this type of monitoring by the ZMC is expected to involve representative stakeholders. In the Northern Zone, two projects were terminated after negative monitoring visits. For EZARF, joint M&E involves the ZMC, clients and other stakeholders knowledgeable in the specific research area. The main tools used are the logical framework, progress reports, field visits and the final report.

4.2.4 INSTITUTIONAL CHANGE

Client influence over research activities drastically improved with the ZARF research contracts. Researchers had to “negotiate” with clients such as District Councils over the focus of proposals (although researchers often dominated in this interaction). Some actors saw the ZARFs as locally owned charities focusing on adaptive research and not as part of the overall government structure (Blackie et al., 2003). However, farmers were not directly involved in resource allocation, only indirectly through farmers’ advocates (district representatives and NGOs) in the ZARFs multi-stakeholder ZMC. The ZARDI often continues to dominate the ZARFs through the secretariat, the ex-officio researchers sitting on the ZMC and/or the powerful peer reviewers, who are often zonal researchers. The Lake ZARF has actually been registered as a formal “society” (SO No. 11903), which allows for a more independent status from the ZARDI. Due to stakeholder pressure, the ZARFs have already become “AKIS” funds rather than “NARS”. ZARFS have moved beyond (adaptive)

¹² In Lake and Northern Zone the ceiling remained USD 6 000, while in the Eastern Zone this was reduced to USD 3 000.

¹³ Specific, Measurable, Achievable, Realistic, Timebound.

research into dissemination activities and, in effect, are becoming research and extension (i.e. AKIS) rather than research (NARS) funds (i.e. they focus on AR4D, as well as on pre-extension and even extension activities), while the NARF focuses purely on agricultural research. Although researchers are often inclined to submit proposals for generating technologies, district extension officers, NGOs and other stakeholders have successfully pushed for a balance in the proposals between generation and diffusion/adoption of technologies.

4.2.5 EFFICIENCY AND SUSTAINABILITY

The institutionalization of the new ZARF funding mechanisms required improved financial management at ZARDIs. A potentially integrated financial and administrative accounting system was installed at all ZARDIs in order to contribute to enhanced transparency, but only in the Lake Zone did it include all sources of funds. A dedicated account for ZARFs allowed for more transparent accounting. The use of direct costing¹⁴ in the Lake and Northern Zones has led to more realistic research budgets and more transparent cost-recovery mechanisms (e.g. transport and administrative costs). The diversification of funding at the ZARDIs resulted in a considerable financial contribution to the operational costs of the overall research programme as well as to the institutional overheads (support services, ARC maintenance, etc.) from contracts and ZARF-financed projects. Similarly researchers' incentives were improved by the contract provision of researcher fees, which consequently stimulated research staff to try and acquire additional research assignments.

The annual fund audits by independent auditors or by the GoT auditor enhance financial transparency if audit reports are sent to all stakeholders, as planned. A major problem in the Central and Eastern Zones concerned the (temporary) use of ZARF funds already allocated to approved research projects to improve the liquidity situation of ZARDIs; this led to delays in disbursing funds for implementing approved activities.

The ZARF "transaction" costs have a nominal ceiling of 10-15% of the total funds collected/approved. However, in practice these costs considerably exceed this percentage in most zones, mostly due to the need for effective M&E¹⁵.

For example, in the Northern Zone, ZMC members were not aware of other payments made by the ZMC for activities such as meetings, M&E reviews, etc. Quarterly financial reports were not discussed as a standard procedure in ZMC meetings and members were only indirectly involved in allocating budgets for projects. ZMC members can only actively participate in the broader range of ZARF-related decisions if they are trained to do so. Although the progress and results of the ZARF activities and projects are presented to all stakeholders

¹⁴ Direct costing is to cost services in full (including overheads) in order to make actors cost-conscious.

¹⁵ It has been suggested that M&E costs might better be included in the research project proposal (Chema, 1999).

Box 2**Financial sources of the ZARFs**

The main financial sources of the ZARFs were expected to be the contributions from District Councils that, after a MAFS ministerial and regional administrative secretaries' campaign, pledged an annual USD 4 000-5 000 per district (USD 480 000-500 000 per year nationally). Bilateral donor contributions were pledged in different zones, e.g. Irish Aid in Eastern Zone, Netherlands (at USD 40 000 annually) in the Lake Zone, GTZ in the Northern Zone, etc. World Bank/IDA was expected to match the amounts collected annually at zonal level (100%) up to a maximum of USD 40 000 per zone per year (i.e. USD 280 000 nationally). The total contributions raised by the zones at the end of 2004 were far below the estimated potential of USD 2.8 Million (USD 280 000 matched with USD 280 000 annually for five years). The Central Zone has been the most successful in raising funds from District Councils, which were matched with national funds (i.e. USD 250 000 in 2000/2001); other successful zones were the Lake Zone (USD 120 000 annually) and Southern Zone (USD 100 000 annually).

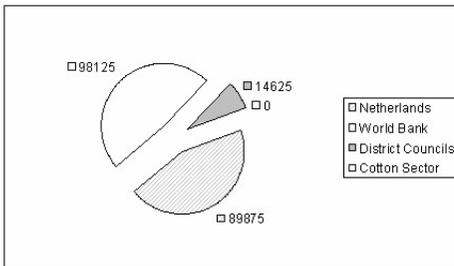
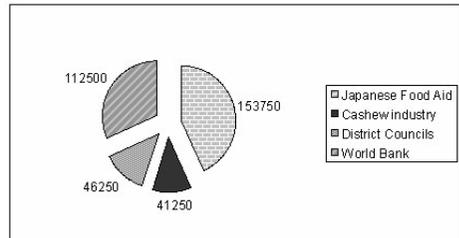


Figure 3 Contributions to Central Zone ZARF by various sources over three seasons (in USD)

Figure 2 Contributions to Lake Zone ZARF by various sources over three seasons (in USD)



through reports and in official zonal fora, a need still exists to improve downward accountability, particularly to the district level. Options include a wider use of leaflets and posters, newspaper articles, as well as radio programmes. This is vitally important as the districts are the key to the financial sustainability of the ZARFs. Campaigns by regional administrative and ZMC secretaries have led to considerable contributions from District Councils, but this flow can easily dry up if the perception arises that results are not forthcoming.

In the Lake Zone a special fundraising meeting was organized for all districts and regional administrative secretaries, which led each district to pledge an annual contribution of USD 4 000. With matching funds this would result in an annual total of USD 120 000 (Blackie et al., 2003). However, this was not realized, partly due to the fact that some local taxes were abolished by the central government, as well as the districts' preference for direct contract research. In the Lake Zone, districts financed the salaries and offices for the ZARF secretariat. Apart from the main contributions by the cashew industry in

the Central and Southern Zones (triggered by the expectation of matching funds from the World Bank), ZARFs have not been particularly successful in attracting funds from the private sector¹⁶.

Box 3 District pledges and contributions to EZARF in the Eastern Zone

In 2001 a multi-stakeholder meeting established EZARF and agreed that the fund was to be financed by the districts. Based on levels and sources of revenue collection, districts were grouped into three categories: those with high revenue collection agreed to contribute USD 3 000 per annum to EZARF, districts with average revenue collection would contribute USD 2 000 and those with low revenue collection only USD 1 000. In 2002 the EZARF was expected to start receiving a total of USD 35 000 each year, which was to be further matched by TARP II/WB funds. However, up to the end of 2004, the districts only contributed some USD 11 700 to EZARF (far below the expected amounts). The main reasons being:

- i Removal of many local taxes, which were district sources of revenue.
- ii Poor follow-up by the EZARF secretariat, in part due to other responsibilities.

4.2.6 EFFECTIVENESS AND RELEVANCE

The Lake Zone ZARF has approved 23 proposals over three agricultural seasons since 1999/2000, with 17 projects being completed. The total amount of funds allocated was approximately USD 125 000 or an average of USD 7 400 for each of the 17 projects. In the Central Zone 13 research projects have been approved and implemented, with an average allocation of USD 25 000. The higher average cost per project is explained by the fact that more diffusion-type projects have been funded, which are generally more costly.

However, ZARFs provided one source of funding for research that remained small in comparison to block grants and contract research. In the Central Zone this was 6% of the overall research budget, and in the Lake Zone it reached 15% of the research operational budget. The approval rate for submitted proposals varied considerably between the zones. The Central Zone had the highest rate (20 rejected out of 281 submitted, or 93% approved), though this was much lower in the Northern Zone (32 rejected out of 54 submitted, or 41% approved).

4.2.7 LESSONS LEARNED

The following list includes a number of important lessons derived from the ZARF case studies.

- Farmers' organizations currently represented in ZARFs, such as the National Network of Small-Scale Farmer Groups (MVIWATA) have a limited capacity and experience in assessing farmers' needs, and the poorest farmers and women are seldom members of these established farmer organizations (Blackie et al., 2003). A condition for strong and inclusive demand-driven ZARFs would be the organization of resource-poor farmers so that they can have a voice in the ZMCs.

¹⁶ However, the Lake Zone managed to get a total contribution of USD 5 000 from 25 private companies through a fund-raising dinner for 70 prominent companies.

- Capacity development of farmer groups and organizations is crucial in identifying and expressing their demands, as well as with the ZMCs. ZMC capacity for financial management and M&E also need to be further enhanced.
- Policy makers need to support local efforts to make ZARFs sustainable, regardless of adverse effects such as the abolition of local taxes.
- The “matching fund principle” needs to be maintained as it provides a powerful incentive and tool for local fundraising. Matching funds should not only come from donors, the Central Government should take a leading role.
- A widening of the call for proposals, greater downward accountability of results and enhanced awareness at district level and in the private sector are also required. This calls for improved responsiveness of ZARDIs and better communications of well-defined programmes and strategies.
- Although financial resource allocation has become more transparent, not all ZMC members are aware of all financial transactions and capacity development is required to enable them to become actively involved in allocating project budgets.
- Apart from the regular financial audit, a general evaluation of fund performance, as well as a value-for-money assessment is needed. Audit results should also be made available to all stakeholders in a comprehensible way.
- ZMC composition remains variable and further strengthening of true stakeholder representation to strengthen downward accountability is required.
- Mechanisms need to be developed to make the District Council contribution statutory rather than voluntary. Within the local government system a special budget line for agricultural innovation has been suggested, as well as a formula for a district ZARF contribution based on district (agricultural) wealth.

Based on the ZARF case studies it can be concluded that the key objective of financial diversification appears to have been achieved, with greater financial contributions by zonal clients leading to (partial) downward accountability. However, some districts shied away from supporting ZARFs in favour of direct contracts: this is threatening local ownership, although the ZARFs can still be a vehicle for local resource control. Farmer representation on the ZARF MCs (and ZECs) remains weak. Better mechanisms need to be developed to ensure that stakeholders own ZARFs and that poor farmers and women have a voice in resource allocation. The empowerment of (small-holder) farmers and their organizations in controlling the financial (and human) resources for adaptive research is still a long way off, not only due to the reluctance of researchers and ZARDI managements, but also due to a lack of (small) farmer organization and capacity.

4.3 District agricultural research funds in Tanzania

By Vincent Akulumuka and Sizya Lugeye

4.3.1 POLICY CONTEXT

In 1998 the MAFS entered into a partnership with the Development Cooperation of Ireland (DCI) in implementing the Eastern Zone Client Oriented Research

and Extension Programme (EZCORE). The programme aims to strengthen both the participatory generation of technologies and empower farmers and Farmer Groups (FGs), as well as enhancing their capacity to demand research and extension services by identifying researchable problems and contracting these to research and extension organizations, and strengthening the extension services to provide advice and disseminate the appropriate technologies. District Councils are supposed to act on behalf of the demand that is originating from farmers and FGs to formulate research questions and they are responsible for managing contracted services. In addition to establishing a ZARF in the Eastern Zone (see Section 4.2), District Development Funds (DDFs) were established in four of the 22 districts in the Eastern Zone.

4.3.2 INSTITUTIONAL SETTING AND GOVERNANCE

The EZCORE project started with four districts (Muheza, Kilosa, Kilombero and Ulanga) in the Eastern Zone. Each of these four districts has a dedicated bank account with EZCORE funds that are destined for two project components: (i) contract research, and (ii) advisory services to provide solutions to client's constraints. The district-based fund for contract research can be used to purchase agricultural services by contracting a service provider. This is any institution that the District Councils identify as capable and qualified to provide the required services (research or extension, depending on the clients' priority needs). However, in responding to client needs, EZCORE simultaneously supports the supply side (technology development) by strengthening research, as well as the demand side by facilitating capacity building for extension services and farmer empowerment.

At the district level, a District Council Management Team (CMT) (consisting of all heads of departments)¹⁷ with the District Executive Director (DED) as chairperson, is responsible for overall management of all EZCORE-supported district activities. The reconstituted District Advisory Committee¹⁸ (DAC) is charged with addressing all technical matters relating to agricultural R&D under EZCORE. The DAC members include: the DED (chairperson), the District Agriculture and Livestock Development Officer (DALDO) and selected staff, as well as an input supplier, an NGO and farmer organization representatives. The DAC, which reports directly to the CMT, oversees district project

¹⁷ Heads of departments from Agriculture and Livestock, Education, Health, Community Development, Lands and Natural Resources, Works, Cooperatives, Water Development.

¹⁸ Before decentralization, there were District Extension Steering Committees (DESCs) chaired by the *District Commissioner* appointed by the Central Government, and DESC acted as both technical and advisory body on agricultural matters in the district. Following the local government reforms, powers to manage activities in the districts were moved from the centre to the local authorities, hence DESC became redundant. When EZCORE started in 1999, there was no structure within the Local Government Authorities similar to DESC and hence the project was compelled to formulate DAC as an interim structure (while waiting for a nationally agreed body) to perform the functions initially implemented by DESC.

implementation and management. It receives and assesses proposals, recommends implementation (or not) and submits contract proposals to CMT for final approval and funding. The 16 approved proposals in 2003/2004 resulted (see Table 7) in contracts with MoA (Ministry of Agriculture) extension (3), MoA research (10), and SUA (3). The main topics were verification trials (6), diagnostic studies (5), socioeconomic studies (3) and dissemination (2).

Table 7 Performance of DDF based on the number of proposals received, approved, type of project and implementing agent

District	Proposals screened (no.)	Proposals approved (no.)	Approved (%)
Muheza	9	2	22%
Kilosa	34	7	21%
Kilombero	19	4	21%
Ulanga	12	3	25%
Total	76	16	21%

Source: EZCORE 2003, Annual report & progress report July 2003 to December 2004.

4.3.3 PLANNING, MONITORING AND EVALUATION

Using a participatory approach the public agricultural extension officers facilitate the identification of agricultural constraints at village level. After compiling the village action plans, the R&D proposals are submitted to the district-based agricultural sector stakeholders forum for analysis, discussion and information sharing before forwarding these to the DAC. The DAC analyzes the proposals and identifies those requiring outsourcing for technical expertise. The short-listed constraints are translated by the DALDO's office into TORs and contracts which are tendered by the DED by publishing them widely throughout the media, including newspapers, as well as sending specific invitations to bid to known research organizations. The DAC assesses proposals submitted by interested service providers using a format originating from ASDP. Once a proposal has been approved, a contract is subsequently signed between the contractor and the District Council. The DAC is involved in monitoring the implementation of activities through quarterly meetings, field visits and reviewing quarterly and annual activity reports produced by the DALDO's office. In addition, farmers (as co-implementers) are involved in M&E. Other stakeholders participating in the Project Steering Committee (PSC) are also involved in monitoring by conducting field visits prior to bi-annual PSC meetings. Evaluation is mainly implemented by contracting external organizations, although the findings are discussed and agreed in a specially organized stakeholder workshop at district level.

4.3.4 INSTITUTIONAL CHANGE

DACs comprise a mix of district and NGO staff, researchers and farmers. For example, Kilosa's DAC has 12 members¹⁹, and Kilombero's DAC has 13²⁰, each with 2-3 women members. At grassroots level FGs number at least 60 in each district, with around 50% female participants. FGs are responsible for identifying problems and are facilitated by the local agriculture extension officer. During this process, farmers groups, split according to gender and age, discuss areas of interest, concerns, fears and opportunities. FG representatives interact twice a year in two-day farmer workshops known as the "farmer forum" (FF). Ownership of the process was enhanced by capacity development activities at farmer group level (e.g. group formation and dynamics, leadership development, record-keeping and cooperative principles). For the agricultural extension officers, the focus was on participatory methods and learning, while district level staff were trained in project management and planning, plus financial and contract management.

Due to the wide stakeholder participation in the various governance structures, procedures and mechanisms, ownership of the district-based research funds lies fully with the district authorities, agricultural extension officers and participating farmer groups. However, experience has shown that the District Councils failed to utilize all the funds allocated under EZCORE. Project records indicate that only 40% of the funds were utilized, mainly due to a lack of proactive facilitation of farmer-felt needs, insufficient capacity with agricultural extension officers and inability by the District Council to deal with public procurement procedures, including contract and financial management, and reporting. Reports from the districts concerned indicate that the sustainability of the process is threatened by a lack of institutionalization of the district-based funds. Although Tanzania has gone ahead with administrative, financial and political decentralization in public administration, sectors such as agriculture have not yet been mainstreamed and integrated at the district level. District personnel from these sectors are highly dependent on receiving directives from technical ministries, which are still strongly centralized. Except for donor-funded district development programmes (DDPs), the district-based research funds are not yet embedded into any district agricultural plan and budget.

4.3.5 EFFICIENCY AND SUSTAINABILITY

The districts participating in EZCORE are required to prepare quarterly physical and financial reports for monitoring and audit purposes. The dedicated district account is audited twice a year by the development partner's internal auditor, and annually by external auditors. The audit reports are organized by the development partner and are not part of the regular district financial management procedures. The audit reports are discussed in the DAC, CMT and PSC for management follow-up.

¹⁹ The Kilosa DAC includes 8 district staff, 2 farmer representatives, 1 NGO representative and 1 input supplier.

²⁰ The Kilombero DAC is similar to that in Kilosa, with 2 extra NGO representatives.

Although institutional sustainability and transparency of the system is considered strong due to the level of stakeholder participation, financial sustainability of the district-based funds is weak. The main reasons for this are:

- i Removal of district revenue-collection sources.
- ii Co-financing of R&D projects has not been achieved, resulting in 100% donor funding.
- iii Existing DDPs do not allocate adequate funds²¹ to agriculture.
- iv The Opportunities and Obstacles to Development²² (O&OD) planning tool does not identify agriculture-related constraints and activities, hence the Local Government Capital Development Grant (LGCDG) does not fund agricultural projects. EZCORE is 100% financed by Development Cooperation Ireland (DCI) (See Table 8).

In fostering good governance, EZCORE discusses research findings and recommendations with the farmers as a way of exercising accountability to the community. However, financial accountability hardly touches communities, although it is stronger at higher levels (project, district, donor). It is therefore difficult to gain financial commitment and contributions from farmers for implementing the activities that they propose.

Table 8 Financial allocations and expenditure from January 2003 to April 2004

Districts	Funds allocated (USD)	Expenditure to 31/3/2004	% Expenditure over allocation
Kilosa	63 507	51 273	81
Kilombero	56 714	43 358	76
Muheza	44 053	28 374	64
Ulanga	47 055	35 835	76
Total	211 328	158 839	68

Source: Strategic Review of Phase II of the EZCORE project, Tanzania.

4.3.6 EFFECTIVENESS AND RELEVANCE

Experience from the districts participating in EZCORE shows that the average district identified two main constraints requiring research services in any given year. The advertized TORs for these required services generated, on average, five proposals originating from the Eastern Zone ARDI (11 approved), other Eastern Zone institutions (7 approved) and institutions outside the Eastern Zone (1 approved) (See Table 9).

The 23 approved proposals address a wide variety of constraints relating to: livestock production (6), integrated pest management (6), economic production chains (5), integrated soil fertility and irrigation management (4) and extension messages (2).

²¹ Many districts receive 2-5% of total funds under DDP for agriculture.

²² Opportunities and Obstacles to Development is a government-approved participatory planning tool to be used when developing the DDP (URT, 2004).

Table 9 Performance of DDFs, based on the number of proposals accepted and rejected

	Number	Observation
Research priorities identified by four districts in three years per year	23	2 priorities per district
Proposals submitted	74	5 proposals for each call
Proposals approved	23	100%
Completed research proposals	14	61%
Ongoing research projects	5	22%
Proposals still to be commissioned	4	17%

4.3.7 LESSONS LEARNED

The most important and critical success factors of the EZCORE programme were the constant follow-up and supervision, effective training sessions, the emphasis on improved researchers' attitudes, enhanced district ability in planning, financial and contract management (including the development of TORs, processing and awarding of contracts). The main weaknesses concerned the poor responses by researchers to Calls for Proposals, combined with a lack of capacity to carry out socioeconomic research and the low agricultural extension capacity to facilitate farmers and FGs in expressing their priorities.

Some of the main emerging issues related to the interpretation of procurement procedures, which led to conflicts between the contractors and the fund, as well as to misinterpretation by researchers regarding their areas of responsibility. Following a participatory approach is important, but is invariably time-consuming and expensive. However, the selection of villages and FGs was very successful. Key elements in the approach were: setting village and FG selection criteria; conducting a village workshop facilitated by extension officers, and verifying village information.

The EZCORE system proved to be more efficient than traditional funding mechanisms, mainly because disbursement is faster and timely, incentives are provided to researchers, and accountability for the funds is better organized. However, there is a need to further enhance stakeholder participation, particularly farmers and their groups, in decision-making at different levels. Similarly, the downward accountability of the funding schemes needs re-enforcement. The number and quality of competition for a particular project call also need to be improved.

4.4 Competitive funds for zonal research programmes in Benin

Henriette Gotoechan-Hodounou, Moustapha Adomou, and Bertus Wennink

4.4.1 POLICY CONTEXT

Around 70% of the population of Benin are employed in the agricultural sector, which contributes about 40% to the gross domestic product. Agriculture is an important source of revenues and therefore a key sector in the national rural poverty reduction strategy. Diversifying agricultural products for national and international markets, improving productivity and development of value-adding processing methods are strategic elements for enhancing the performance of the agricultural sector and thus contributing to rural poverty reduction. Small and medium-sized enterprises are therefore considered strategic partners of agricultural research in adapting and testing food-processing techniques and equipment and linking producers to local and national markets. Agricultural development is extremely dependent on agricultural innovation, hence the key role given to agricultural R&D institutions. The *Institut National des Recherches Agricoles du Benin* (INRAB) is the principal agricultural research organization and coordinating agency of the NARS (*Système National de Recherche Agricole*).

Decentralization and deconcentration were the basic principles for INRAB's organizing agricultural research into eco-regional, sector and national programmes. In 2000, two zonal Agricultural Research Centres (ARCs) or *Centres de Recherche Agricole* were created as decentralized and deconcentrated INRAB entities, each with an agro-ecological zonal mandate for the South, Centre and North respectively. In 2001, a third ARC was created that took over activities from ARC South-Centre, specifically for the Centre area. Agro-ecological conditions in Benin vary substantially between the south and the north. In the south, rainfall conditions allow two crops per year, but rapid depletion of soil fertility undermines agricultural productivity, partly due to high population densities. However, the north, which borders the Sahel and has a single rainy season, has much lower population densities but is confronted by drought risks. ARCs have a zonal mandate for coordinating and implementing multi-stakeholder-driven agricultural research programmes. Since 2000, the competitive research fund has become a key instrument for financing and managing the annual research planning cycle. The objectives of the zonal competitive research fund as communicated to stakeholders were twofold:

- i Enhancing participation by research clients and users in consultation and decision-making procedures concerning the planning and assessment of agricultural research.
- ii Stimulating cooperation between member organizations of the Benin NARS.

Four years of experience in using these deconcentrated stakeholder-controlled funds at sub-national level is a good basis for assessing their functioning and usefulness. A team of INRAB researchers consulted policy documents and management reports, and interviewed key stakeholders in order to identify best practices and lessons learned from multi-stakeholder management of competitive research funds.

4.4.2 INSTITUTIONAL SETTING AND GOVERNANCE

INRAB was created in 1992 to replace the former ministerial department for agricultural research. In 1996, INRAB became a public sector organization, with administrative and financial autonomy for which strategic orientations were defined in the national agricultural research master plan (NARMP) or *Plan Directeur de la Recherche Agricole*. This master plan resulted from multi-stakeholder consultations and defined the main research priorities, as well as the need for institutional reforms such as:

- Enhanced participation by clients and users in agricultural research for targeting and adapting technologies.
- Zonal research programmes that take into account the various agro-ecological and socioeconomic realities.
- Strengthening cooperation between research institutions in order to mobilize all available financial and human resources and create synergy.

In 2000, the government further defined INRAB's organizational set-up in order to restructure the institute, thus allowing the effective implementation of NARMP. INRAB's mission is to generate technologies, knowledge and information on the agricultural sector that contributes to poverty reduction and food security, and takes into account the sustainable use of renewable natural resources.

A national competitive fund is managed and accounted for by the central INRAB management. Setting research priorities and allocating funds to the selected research proposals has been delegated to zonal ARC-based multi-stakeholder committees. Both the Centre-South and North ARCs constituted zonal competitive research funds for financing proposals submitted by researchers and extension agents. Procuring funds for research proposals and accounting for their use is handled by accountancy services at both the ARCs and INRAB, based on internal procedures. The two competitive research funds were initially part of a "basket fund" for institutional support to the zonal agricultural research programmes. During three multi-stakeholder workshops that were organized in 2000 by the two ARCs, the stakeholder groups elaborated zonal programmes with research projects addressing the specific agricultural constraints identified. Simultaneously, mechanisms were put in place to coordinate the implementation of the agricultural research programmes²³ by the zonal ARCs, supported by the central INRAB management, and implemented

²³ The project *Appui à la Gestion de la Recherche Agricole Nationale (AGRAN)*, funded by the German Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ) with technical assistance from the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ); the *Projet Appui à la Recherche Participative (PARP)*, funded by the Royal Netherlands Embassy (RNE) of Cotonou and the Centre Béninois pour le Développement Durable (CBDD), with technical assistance from the Royal Tropical Institute (KIT) of the Netherlands; and the programme for *Appui aux Programmes Régionaux de Recherche Agricole (APRRA)*, funded by the Government of Benin, Danish International Development Agency (DANIDA) and the RNE, with technical assistance from KIT.

with assistance from national and international cooperation agencies. These mechanisms were built on previous experience with multi-stakeholder consultation in specific INRAB projects (e.g. management tools for orienting adaptive research).

Major stakeholder groups identified are:

- i The end-users of technologies and information (farmers, food processors, small forest operators and fishermen).
- ii The extension service providers (public and private organizations for agricultural extension and advisory services such as the *Centre Régional de la Promotion Agricole* (CeRPA).
- iii The research organizations (researchers and students from INRAB, the faculty for agronomy of the *Université Nationale du Bénin*, the CeRPA, the international research institutes and consultants organizations²⁴) plus national and local government authorities.

The men and women who represent the end-users in stakeholder meetings were identified in two ways:

- i Members of Village Community Development Committees (*Comités de Coordination*) and FGs (*Groupements Villageois*) involved in research and extension.
- ii Representatives of the major entities involved, mainly organizations of cotton producers and processors such as the *Unions Communales des Producteurs* (UCP) and the *Unions Départementales des Producteurs* (UDP).

Since 2003, local government authorities of the newly created *Communes* are also invited to participate in the stakeholder meetings. Agricultural research often contributes to the formulation and implementation of local development programmes and local rural institutions are becoming new sources for disseminating information and technologies.

The Zonal Competitive Funding mechanisms are governed by various multi-stakeholder institutions, such as the:

- i Scientific Workshop, SW (*Atelier Scientifique*).
- ii Zonal Research and Development Committee, ZRDC (*Comité Régional de Recherche et de Développement*).
- iii Proposal approval committee, or PAC (*Commission d'Approbation des Protocoles*).

The ZRDC meets at an annual three-day meeting and involves all researchers and representatives of end-users and extension organizations. This totals 75-100 members, with end-users forming the majority. The director general of zonal public extension (CeRPA) presides over these meetings in which researchers and extension agents present research and pre-extension results. The meeting

²⁴ In 2002 the Université Nationale du Bénin became the Université d'Abomey-Calavi (UAC) and the Université de Parakou (UNIPAR). The CeRPAs are also considered members of the SNRA since they conduct pre-extension tests.

decides on the required follow-up with respect to research results, continuation of the research projects, technology verification in pre-extension programmes or dissemination. The meeting also identifies new constraints and priorities for research, as well as policy recommendations to be addressed by national and local authorities. In addition, the ZRDC decides which organizations will represent the stakeholder categories in the PAC: local producers' organizations for the end-users, CeRPAs and NGOs for extension projects, and ARCs and other organizations for research. A PAC meeting counts on the participation of 15-20 members, i.e. representatives of referred organizations and resource persons. A PAC approves research proposals on the basis of INRAB criteria and allocates budgets to the selected proposals. Each zone (South-Centre and North) has its own PAC. INRAB chairs these PAC meetings in order to supervise and harmonize the decision-making procedures in these two zones, as well as to maintain continuity as the composition of PACs changes year by year.

4.4.3 PLANNING, MONITORING AND EVALUATION

Priority-setting for a Call for Proposals takes place through two mechanisms:

- i Initial priorities that were identified during the multi-stakeholder consultations for the zonal agricultural research programmes in 2000.
- ii These priorities are updated and adapted during the annual ZRDC meetings.

After the annual ZRDC meeting, INRAB launches a Call for Proposals for the competitive research fund via posters at national and local offices of research organizations and extension services, newspapers and radio. Interested researchers can obtain a format for preparing proposals and documents that present:

- i A synthesis of the regional research programme (research priorities and projects).
- ii The priorities set by the ZRDC meeting.
- iii The selection criteria and procedures.
- iv Date and place for submitting the proposals.

All organizations that have personnel and resources to conduct research and have a satisfactory research track record can participate: this includes CeRPA as it is involved in pre-extension activities. All researchers and extension agents of these organizations can submit proposals, and all research activities are eligible if the information and technologies to be generated respond to constraints identified in the regional research programme or address immediate needs expressed by end-users. Potential research activities include: exploratory and diagnostic studies, desk studies, on-station and on-farm trials, pre-extension tests, and impact-assessment studies. Pre-extension tests are conducted under the responsibility of specialized agents for research-development (R-D) at the CeRPAs²⁵. The emphasis for competitive funding is

²⁵ Pre-extension is considered to be the final stage before large-scale dissemination of technologies developed by researchers: it aims to validate on-farm the results of adaptive research on technologies.

on-farm trials and pre-extension tests. These activities build upon current information and technologies and have proven to generate results that are soon made ready for use by end-users. The research areas cover a wide range: animal and crop production (with the exception of commodities that are considered to be “strategic” such as cotton, oil palm, etc., which are handled through specific sector programmes), storage and processing of agricultural products, farm mechanization, soil and water conservation, soil fertility management, forestry, fisheries and fish breeding, and natural resource management.

The PAC meets in a first session to examine the research proposals submitted, and distributes these among committee members according to their professional skills. Three PAC members examine each proposal; individual CAP members cannot examine proposals in which they are involved. Each member has around one week to examine and rate proposals. Four key selection criteria are used to assess proposals:

- i Strategic relevance.
- ii Scientific relevance.
- iii Appropriateness of research methods.
- iv The cost-benefit ratio²⁶.

During the second session the overall scores of the three reviewers are averaged out to obtain the final rating. Other tacit criteria that are being used by PAC when assessing proposals include: institutional cooperation and cost-sharing arrangements between NARS organizations, the research infrastructure available through these organizations, and the track record of the proposed research team. The final assessment indicates whether a proposal is “fully accepted”, “accepted on conditions of improvement” or “rejected” and subsequently returned with comments to the lead researchers, who are invited to resubmit unaccepted proposals under a later Call for Proposals.

Finally, in a third session, a small PAC sub-committee verifies whether or not the returned (conditionally accepted) proposals have been sufficiently improved. All accepted proposals are then ranked according to their ratings and only the highest ratings are financed under the available zonal budget. The lead researcher for a financed project and the DG CeRPA sign a contract with INRAB for to implement the proposals.

INRAB’s planning and M&E service organizes an annual multi-stakeholder field trip for a small group to visit all ongoing research projects. The M&E mission that goes into the field consists of representatives from the INRAB Scientific Direction and the ARC involved, resource persons from the university, and representatives from both the national (Ministry) and provincial (CeRPA) level of the national agricultural extension service. This team assesses the implementation level of the research proposals, expenditures made and accounted for, identifies problems and suggests modifications, as well as assessing the participation level of other stakeholders in the research activities.

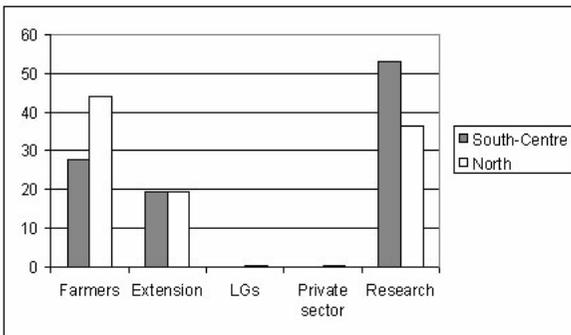
²⁶ These criteria are weighted with 10, 5, 3 and 2 respectively.

Finally the team and the stakeholders involved rate the level and quality of project implementation. Recommendations from the monitoring missions are communicated to the research teams, the zonal ARCs and INRAB. Unsatisfactory implementation can lead to suspension of a research project.

4.4.4 INSTITUTIONAL CHANGE

Users of research results make up half of the participants in the ZRDC, with at least one-third being end-users. However, researchers tended to dominate these meetings and hence separate Scientific Workshops were instituted (Figure 4). Operators within the agri-food processing sector also participate in ZRDC meetings through representatives of women’s groups and associations; small and medium-sized agri-food enterprises participate in meetings organized by the sector research programme on post-harvest technologies.

Figure 4 Representation (%) of stakeholder groups during ZRDC meetings



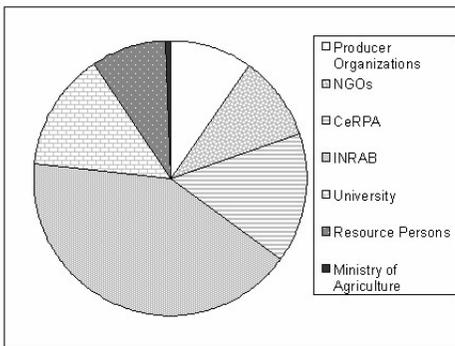
The participation by end-users in ZRDC was enhanced through training in presenting research results and methods for priority setting. This involves:

- Farmers who collaborate with research and extension in R&D at sites representative for the agro-ecological region, are asked to choose a representative to present results of trials and tests at the ZRDC meeting. A person is chosen who is: capable of voicing needs on behalf of the community (in the local language or French) and willing to communicate decisions taken by ZRCC to his/her community. Researchers help them to prepare the presentation of research results and decide on priorities to bring up at the meeting.
- In 2004 INRAB trained union “commodity groups” of UCPs and UDPs to define research priorities with the help of the “Strengths-Weakness-Opportunities-Threats” methodology. This approach allows them to go beyond defining problems and needs and adopting a more strategic vision for commodity chain development. Subsequently the SWOT results were presented in the ZRDC meeting.

Staff members of the provincial *Unions* represent agricultural producers in the PACs. These staff members are generally well trained and have a professional

training similar to the researchers in PAC. Still, they often lack the competence to critically examine the submitted research proposals from all (scientific) sides (for which they are sometimes criticised by researchers). Nevertheless, opening the examination of research proposals to stakeholders other than researchers, and at the same time mandating these stakeholders to allocate resources, has been a major innovation in research funding and management. The persons representing stakeholder groups in PAC vary from year to year. This is particularly the case for INRAB and university representatives, who make up half of the committees in order to ensure scientific quality of the accepted research proposals. In fact, through a rapidly revolving membership, INRAB, as official coordinating agency of NARS, aims to familiarize researchers with the procedures and thereby enhance transparency and ownership of the system.

Figure 5 Representation of stakeholder groups in PACs in Benin



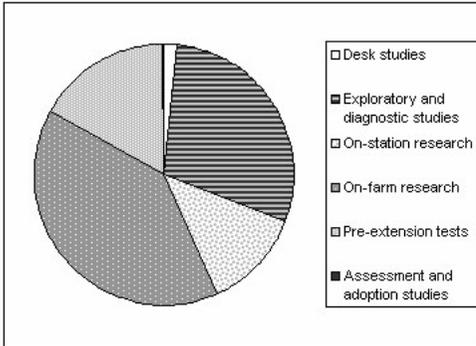
4.4.5 EFFICIENCY AND SUSTAINABILITY

Establishing standard criteria, procedures and norms for examining proposals and allocating resources in combination with closer institutional cooperation, enhance research efficiency. Although research topics are definitely more user-oriented and development-relevant, the types of research funded may not always be the most appropriate way to generate rapidly usable results. This is mainly explained by the fact that researchers within (new) INRAB sector programmes, which lack consolidated funding for research operations, focus on strategic and applied research for the more adaptive research-type zonal competitive research mechanisms.

A combination of peer review during SWs (Scientific Workshops), presentation in ZRDC meetings, monitoring missions and financial procedures compels researchers to properly implement funded activities and account for funds (researchers do not want to lose face in front of other stakeholders). The efficiency of the reviewing and accounting mechanisms stimulated other donor-funded projects to use the ZRDC and PAC mechanisms for orienting research and examining proposals that were part of contractual agreements between

these projects and INRAB²⁷. However, these projects maintain a final say in allocating funds after the decisions taken by the regional PACs. Within the system for competitive research funds, two modalities can now be distinguished: without “earmarking” (mainly institutional support by international donors); and “earmarked” funds (for specific research activities that are being contracted by donor-funded projects)²⁸.

Figure 6 Types of research funded (% of accepted proposals)



International donor agencies fund research activities and logistics for organizing regional committee meetings and the government budget supports investments (infrastructure and equipment) at the ARCs. After two years the costs for organizing the various meetings (SW, ZRDC, PAC) were rapidly perceived as a major hindrance to the institutional sustainability of the system. Two options were taken. First of all, organizations participating in these meetings were asked to pay the participation costs of their representatives. Participation by representatives of the major farmers’ union, which receives its funds from cotton levies, was gradually paid by their organization. The second option, which was proposed for funding participation by research and extension representatives, was to include participation costs for lead researchers in the budgets of the research proposals that were being submitted for funding. Several mechanisms have been developed to enhance transparency and accountability through better communication between AKIS and NARS stakeholders. All decisions taken and recommendations made, as well as procedures used and criteria applied, are communicated to all stakeholders involved using various means: posters, newspapers, radio programmes, plus ZRDC and PAC reports that can be consulted. The main motive is to enhance

²⁷ The *Projet d’Amélioration et Diversification des Systèmes d’Exploitation (PADSE)*, funded by the *Agence Française de Développement (AFD)*; and the *Programme de Développement des Racines et Tubercules (PDRT)*, funded by the Government of Benin and the *Banque Ouest Africaine de Développement (BOAD)*.

²⁸ INRAB’s sector programme on post-harvest technologies, which also receives funds from DANIDA, established a similar governance structure (*Comité Sectoriel de Recherche et de Développement, CSRD*) and CAP.

“fair competition”, particularly among those NARS researchers who were not used to being submitted to “competition”, and to avoid any impression that INRAB monopolizes the system.

The PAC reports to the ZRDC meeting on:

- i Number of proposals initially submitted and finally accepted.
- ii Types and areas of research covered.
- iii The overall budget allocated.

This allows clients to gain a better understanding of research costs. The scientific director of INRAB reports to the ZRDC on the main results and recommendations of monitoring missions. This report is also used in the PAC meeting for assessing requests for continuation of a research project.

4.4.6 EFFECTIVENESS AND RELEVANCE

All stakeholders interviewed agree that research is now focusing more than ever on the problems and needs of agricultural producers and other stakeholders, and therefore also covers topics beyond agricultural production. A lack of (or weak) strategic relevance is often the main reason for not accepting a research proposal or asking for improvement; insufficient scientific relevance and inappropriate research methods are the second important arguments. Besides increased relevance for agricultural development, quality improvement of proposals is another positive effect cited, particularly by researchers and extension agents. Considering pre-extension proposals for funding allows for linking between research and extension, and the development of a regular flow of technologies and information. Pre-extension proposals submitted by CeRPA's are almost all accepted because they concern technologies on which previous ZRDC meetings had decided to organize tests, and thus easily gain a high score for strategic relevance.

Furthermore, all interested stakeholders can participate in ZRDC meetings if they pay the participation fees, and this generally improves knowledge and information flows on innovation amongst stakeholders. INRAB and the universities are the main bidders for funding. The INRAB R&D teams now depend entirely on competitive funds for conducting research, which explains why INRAB still implements the majority of accepted proposals. However, after the initial years, the universities started to submit more proposals, particularly after the opening of the university in Parakou. Students and research assistants are particularly involved in implementing research proposals.

All stakeholders interviewed appreciated the different stakeholder meetings: they facilitate interaction between NARS institutions and the exchange of knowledge and information between stakeholders. NARS members' funding access enhances institutional cooperation with universities and between INRAB regional and sector programmes. As a result, university and sector programme researchers also started to employ participatory methods for diagnostic studies, surveys and on-farm trials.

Figure 7 Acceptance/submission ratio (%) for research proposals per institution

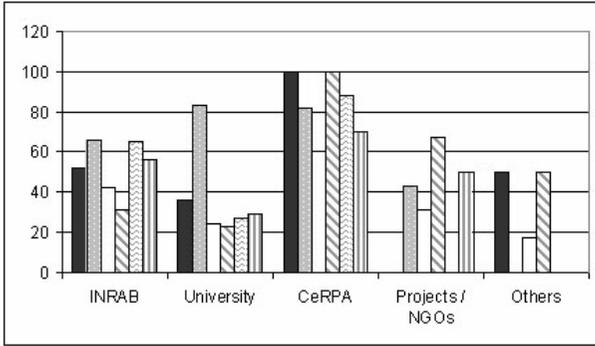
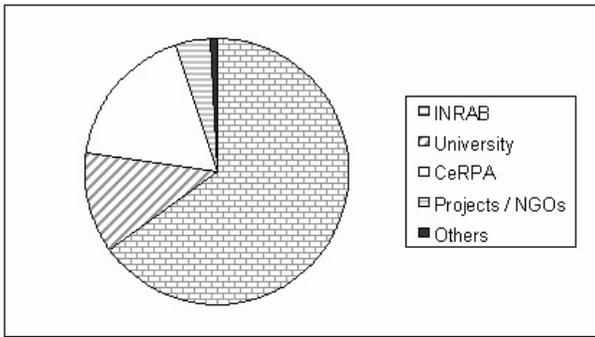


Figure 8 Distribution (%) of accepted proposals among submitting organizations



Results from the first three years indicate that the flow of technologies from adaptive research to (pre-) extension has improved: in just a few years the number of technologies that were proposed for (pre-) extension increased. Of course this might be the result of exposing research results to a wider audience (of extension agents and farmers) that look for less “fine tuning” than researchers. However, the lack of consistent information on the adoption and “fate” of technologies highlight the necessity of systematizing information on adopting innovative technologies.

4.4.7 LESSONS LEARNED

Organizing separate research workshops and multi-stakeholder meetings (ZRDCs) allows for focused discussions and transparent decision-making. Informing stakeholders (other than researchers) on costs and benefits of research activities creates a better understanding of research management and strengthens service-provider accountability for publicly funded services to clients. The rotating membership of the PAC strengthens the researchers’ review skills, provides better insight into the established procedures and

criteria, and creates ownership of the system. The improved institutional collaboration within the NARS reduces the overlap and duplication in research activities, and facilitates synergy.

The competitive zonal fund is just one element of an overall research management cycle (peer reviewing, multi-stakeholder examination of proposals, monitoring implementation, accounting for funds received and results produced), which has improved the development relevancy and quality of research, and has allowed for much more integrated and better quality research management. The system enhances the quality of research as only the best proposals are funded, while the best-performing researchers are being rewarded. However, time constraints are affecting the quality of R&D proposals, as the whole multi-stakeholder planning cycle (ZRDC, PAC, etc.) takes place within two months. The financing of pre-extension through competitive research funds reinforces the link between generating, disseminating and using the knowledge within the AIS. Agricultural extension remains the weakest link in both knowledge and information management, through persistent limited resources (both financial and human) and capacity. There remains an urgent need for a more pluralistic and demand-driven agricultural extension and advisory system, involving additional and more competent actors.

This review of four years of experience with competitive funding mechanisms in Benin has led to some important lessons. These relate to capacity development requirements such as the need to train farmer organizations and other farmer representatives to express their priorities and to explain the importance of their participation in the system (which in the end may also stimulate them in enhanced cost-sharing). Although researchers (not institutions) submit proposals, which may fail to stimulate NARS organizations themselves to improve internal quality control, research is now much more involved in on-farm participatory research. A more consolidated funding of sector research programmes is needed in order to allow for: knowledge input into zonal programmes, balancing strategic, applied and adaptive research, and focusing on priority research topics. International donors largely support the overhead costs of organizing annual zonal stakeholder meetings. Effective ways of cost-sharing and further cost reduction need to be developed for strengthening the ownership by national stakeholders²⁹.

²⁹ A national multi-stakeholder workshop organized by INRAB in 2004 made the following (cost-reducing and time saving) proposals: organize annual SWs, ZRDC meetings covering both zones at the national level, submit, examine and fund proposals every two years, and continue to organize annual monitoring missions in both regions and village meetings for assessing research results.

5 Public-private partnerships

5.1 The privatized Tanzania Coffee Research Institute, TaCRI

Barnabas Kapange and Ninatubu Lema

5.1.1 POLICY CONTEXT

In the 1980s the liberalization and structural adjustments of the Tanzanian economy prompted the GoT to review and redesign its NARS. One of the key objectives of subsequent donor-supported national agricultural research programmes (TARP I and TARP II) was to promote the involvement of the private sector in the funding of agricultural research, particularly for industrial commodities such as tea, coffee, tobacco, cotton, cashew, pyrethrum, sisal, sugar cane, barley, etc. Research responsibility for Tanzania's traditional export crops was either entirely privatized (tea, coffee and tobacco)³⁰ or devolved into semi-public "commodity boards"³¹ with a significant amount of financial and administrative autonomy (e.g. cashew, cotton, and sugar). Recognizing the essential public nature of smallholder agriculture, the government maintained responsibility for the food crop, livestock and factor programmes.

Fundamental alterations in the relationships between the private and public sectors have taken place in the economic chains surrounding the cashew crop. The private sector now controls most functions relating to production, processing and marketing, while GoT retains control over regulatory functions including policy setting, providing information, and regulating sanitary and quality standards. The amount and method of collecting levies and cesses set by the government for commodity R&D, differs per commodity. Collection and disbursement is the responsibility of the commodity boards. A specific proportion is to be allocated to the concerned commodity research centres, although no control mechanism exists to ensure that the boards regularly remit the amount agreed. In some cases general (competitive) research funds have been established into which money is deposited but the ZARDI management have no direct access to the fund. Only the cashew sector has an exclusive fund to which the research centre concerned has full access. Significant variation in

³⁰ The Tea Research Institute of Tanzania (TRIT), TaCRI and the Tobacco Research Institute of Tanzania (TORITA) were established in 1997, 2000 and 2001, respectively.

³¹ There are currently eight crop boards, established by Acts of Parliament: coffee, cashew, cotton, pyrethrum, sisal, sugar, tea and tobacco. CBs are parastatal companies controlled by their parent ministry rather than by the stakeholders.

the level of funding exists between different commodities. ASDP aims to make the produce boards for industrial commodities more accountable to the sector rather than to the Agricultural Sector Lead Ministries (ASLMs); the main thrust of the ASDP is restructuring self-regulating bodies (ASDP, 2001).

5.1.2 INSTITUTIONAL SETTING AND GOVERNANCE

TaCRI was launched in March 2001; GoT transferred the existing coffee research centres and contributed financially through the EU STABEX funds, but did not contribute directly via block grants or contracts. The establishment of TaCRI placed new emphasis on the role of stakeholders and that of demand-driven research. TaCRI serves stakeholders in the coffee industry and is answerable to them rather than to the ASLMs.

TaCRI's mission is to contribute to the transformation of the Tanzanian coffee industry towards sustainable prosperity. The institute intends to achieve this by developing and disseminating appropriate technologies to improve coffee productivity and quality, within a supportive policy framework. The desired result is increased competitiveness of Tanzanian coffee on world markets and ultimately increased incomes, poverty reduction and improvement in the livelihoods of Tanzanian coffee growers.

TaCRI was registered as a trust under the GoT Companies Ordinance in October 2000 and is a membership-based organization. Representatives of the constituent organizations, groups and individuals, to whom TaCRI is answerable, attend the Annual General Meeting (AGM), which approves the utilization of financial, human and management resources. A Board of Directors, elected from stakeholder groups in the AGM manages TaCRI through a Chief Executive Director (CED) who heads the TaCRI management team. Board members represent both large-scale and small-scale coffee farmers, the Tanzania Coffee Growers Association (TCGA), Kilimanjaro Native Cooperative Union (KNCU) and Mbozi Cooperative Union (MCU), MAFS, Tanzania Coffee Board (TCB) and the Tanzania Coffee Association (TCA). A Technical Advisory Panel (TAP)³² of five eminent Tanzanian researchers and extensionists advise the Board on technical and management issues to ensure that TaCRI is fulfilling its mission and remains responsive to the priority needs of Tanzania's coffee industry.

5.1.3 PLANNING, MONITORING AND EVALUATION

A Strategic Action Plan was developed in three phases during July/August/September 2002, and January 2003. The first phase included a nationwide analysis of stakeholders, and a stakeholders' workshop that confirmed the major priority activities identified by stakeholders to be undertaken by TaCRI. The second phase involved reviewing previous and ongoing research and developing an organizational structure for TaCRI. The need for training and research to assist the institute in meeting its objectives

³² The panel replaces the Coffee Research Steering Committee.

was assessed, and the benefits to the industry of TaCRI working in partnership with other national, regional and international organizations were also considered. The final phase involved developing a comprehensive and practical framework for TaCRI, together with specific target outputs and comprehensive budgets for the next five years. TaCRI strives to provide quality services in developing technologies and effective communication to end-users. TaCRI forges stakeholder partnerships and continuously monitors and reviews progress and achievements. Researchers develop proposals that are submitted to the TaCRI Board for approval. A major remaining challenge is to ensure that research priorities for farmers originate from the wider communities, rather than depending on a few farmers or farmer organization representatives on the Board, by making better use of the primary societies of coffee farmers.

5.1.4 INSTITUTIONAL CHANGE

The stakeholders and clients own TaCRI. Both small-scale and large-scale coffee farmers, cooperative societies and unions dealing in coffee, coffee processors, coffee traders, relevant NGOs, the private sector, and GoT are all represented on the TaCRI Board, with full autonomy to set research priorities. The government is also represented on the Board, to address policy issues and provide regulations. Farmer representatives are mostly from KNCU, TCGA and MCU, while many of the primary societies have left these organizations to become members of smaller Farmer Business Groups linked to the Association of Kilimanjaro Specialty Coffee Growers (AKSCG). There is still a need to further strengthen the process of priority setting to include the needs of the different household and gender categories. Comparing the current procedures with the previous centralized way of priority setting, tremendous changes have taken place, with stakeholder voices being better heard, which results in more emphasis on adaptive and on-farm research, as well as on extension and training activities. TaCRI has also contributed to the formation of FGs in collaboration with the public extension system. The main objective in forming these FGs is to disseminate research-proven technologies such as newly released coffee varieties. However, if such groups are well managed, they can also become important platforms for setting research priorities.

5.1.5 EFFICIENCY AND SUSTAINABILITY

There are several sources of funding for coffee research: government block grants, cess revenues, STABEX³³ funds, pesticide testing fees, “self-help” (i.e. internal revenue) funds, and special projects, including the sale of materials and services (e.g. planting materials and publications). The main funding sources are the crop cess and STABEX funds, which amount to around a

³³ The STABEX (*STABILISATION des recettes d'EXPORTATION*) system funded by the FULL EDF was set up to alleviate the effect of non-structural problems such as fluctuations in world prices or events beyond the control of producers and purchasers.

USD 1.25 million³⁴ per annum. TaCRI is still depending on regular GoT contributions to coffee research, to supplement cess levy funds. Comprehensive data on current and previous funding sources for coffee research are not easily available, and can only be accounted for with the funding sources. The government allocation used to be around one-third of the coffee R&D requirements (equal to around USD 223 000 per annum) before privatization. Researchers had given up research at substations or on farmers' fields due to a lack of resources. Fortunately this situation changed after TaCRI was established, and research budgets are now being made available.

The cess levy started off at 0.125% of coffee auction sales (1995) and was increased to 0.25% in 1998 and to 0.75% in 2004³⁵. Although cess levies were considered sufficient to fund coffee research, the current decline in the quantity and price of the crop, due to world markets and Tanzanian coffee quality, has proved otherwise. Negotiations to raise the cess level have not yielded any results, also as deductions from the coffee sales are already very high and profitability of the crop is low³⁶ (Enos, 1995). Partly as a result of excessive delays, the cess collection by TCB is currently seen as a liability rather than an asset for promoting coffee research. The newly established TaCRI has a significant financial requirement for providing capital for major station renovations and purchasing new equipment to get the institute off the ground and working effectively. A large proportion of this has been provided through a STABEX grant from the EU, which is instrumental in getting TaCRI fully established and meeting its objectives. TaCRI will also benefit from a STABEX "sinking" (i.e. endowment) fund that will generate ready income for the next 15 years, plus possible matching funds through the GoT. However, the contribution by EU-STABEX funds is a temporary arrangement and thus causes sustainability concerns. Generating direct revenue also makes a significant contribution through coffee sales, testing fees, special projects, sale of products and information, etc.

Accountability of the research programme has been enhanced through regular progress reporting to the AGM following an agreed comprehensive workplan and budget. However, not all farmers' organizations are registered as TaCRI members. Annual audits are conducted by private companies, reflecting greater transparency in the use of financial resources. TaCRI has also rationalized human and physical resources for coffee research. Only some selected field and support staff have been transferred to the new privatized

³⁴ Note that STABEX funds were also used in the period 1996-2002 (resulting from stability collections over previous years). STABEX funds over later periods were disbursed directly to farmers and the present STABEX funds are once again contributing to research (and extension).

³⁵ This is considered low compared to neighbouring Kenya and Uganda, which had a levy of 6% (in 2004) and 3.6% (in 1997) respectively, although possibly financing more than just research.

³⁶ Note the complaints about heavy total coffee taxes of up to 21%.

institution; a total of 17 coffee researchers were recruited through open application procedures and allocated to the various coffee research stations.

5.1.6 EFFECTIVENESS AND RELEVANCE

Stakeholders have identified priorities for coffee research including:

- The continued development of high-yielding, disease-resistant, high-quality varieties for both Arabica³⁷ and Robusta³⁸ coffee, including their effective and rapid release for evaluation by farmers in different coffee-based farming systems (ecological areas).
- Cost-effective IPM systems.
- Nutrient management (organic and inorganic), including the provision of soil and leaf analytical services (commercial).
- Primary processing technologies suitable for use at the farm level, such as practices enhancing coffee quality including wet-processing techniques, agronomic practices and replacement of old trees.

Other main challenges for TaCRI are to ensure global competitiveness of Tanzanian coffee and an enabling environment for its production. TaCRI has shifted its emphasis from a research approach, solely focused on coffee production, to concentrating on coffee incomes and the livelihoods of farming households.

TaCRI plays an important role in linking to international coffee research in order to facilitate technological “spill-ins”. TaCRI maintains strong links with the Centre for International Cooperation and Agricultural Research for Development (CIRAD, France), the International Coffee Research Institute (CIPC, Portugal) and the International Centre for Biological Sciences (CABI, United Kingdom), as well as with research institutions in neighbouring countries (Kenya, Uganda, Ethiopia and Rwanda). These international partnerships have resulted in collaborative work in tissue culture and in coffee disease resistance breeding. Technology transfer and training are important TaCRI activities and the institute operates a school for farmers and extensionists based on adult education and Farmer Field School (FFS) approaches. TaCRI has expanded its Training of Trainers programme, providing training of farmer groups to initiate village-based training and the establishment of secondary nurseries. TaCRI also disseminates information through regular reports and agricultural shows.

5.1.7 LESSONS LEARNED

Some of the lessons learned include:

- TaCRI has made a clear shift towards adaptive research and (pre-) extension services in response to demands by stakeholders, which has made

³⁷ Five new Arabica hybrids were released, and nine tissue culture clones established and multiplied.

³⁸ Six best-bet robusta varieties were multiplied and distributed.

programmes more relevant, but it is too early to see any impact on the coffee industry in general, or smallholder coffee production in particular. Due to its membership structure other stakeholders, such as farmer organizations and NGOs can now become members of TaCRI and thus influence its research strategies through the AGM.

- Although it is too early to draw conclusions on research efficiency, it can be observed that the research output is more in balance with the existing human and financial resources, while this output is perceived to be more relevant to the stakeholders in the coffee sector.
- The institute's achievements in reorienting its R&D agenda are largely attributed to the participatory planning process used during the establishment of TaCRI.
- Given current coffee prices, farmers already consider the cess levies to be high, making it difficult for TaCRI to argue for increases. The institute will therefore have to succeed in enhancing R&D funds by facilitating increased and better-quality coffee production³⁹.
- Effective human resource management is essential, including providing adequate and sustainable funding for staff remuneration at TaCRI.

TaCRI products are public goods, particularly for smallholder coffee growers. However, demand-driven research (and extension) will not automatically include long-term strategic sector issues such as food safety (new requirements by EU), sustainability and the socioeconomic well-being of producers, hence there is an argument for continued public sector involvement (also financially) in coffee R&D. Enhanced coffee production and increased research cess levies will require public intervention such as special tax arrangements or substantial investment (infrastructure) in the subsector.

Finally, TACRI needs to further strengthen interaction with farmer organizations through:

- i Representative farmer organizations taking part in stakeholder meetings and other research (and extension) governing bodies.
- ii Implementing research and extension programmes in collaboration with large numbers of FGs (for training and nursery objectives) and helping FGs to form networks and/or improve their linkages to established farmer organizations⁴⁰.
- iii Facilitate linkages between (i) and (ii) above.

³⁹ The newly introduced high-yield and disease-resistant varieties in combination with sound agronomic practices are a good starting point. Further quality improvements through better production and processing techniques are required, as are improvements in the enabling environment in relation to marketing, general policies and availability of services. In addition, the public sector (Government, EU/STABEX) needs to intervene in TCB disbursement procedures (e.g. through matching funds).

⁴⁰ New networks could emerge with TaCRI facilitation, such as on the Ward and District Farmer Fora model, promoted in ASDP.

5.2 Public and private funding of agricultural extension in Benin

Cakpo Anatole Sogbohossou, Ramanou Fassassi, and Bertus Wennink

5.2.1 POLICY CONTEXT

In Benin, agricultural extension is largely provided by the public sector, although private (for-profit and not-for-profit) organizations also provide agricultural extension and advisory services. Platforms exist at different levels to coordinate extension and advisory services and facilitate collaboration. In the mid 1980s staff recruitment for the public sector was frozen due to structural adjustment measures. In the mid 1990s recruitment was restarted, but the agricultural sector was not considered a priority and, as a result, retiring extension personnel were not replaced with new staff. Meanwhile the public agricultural extension organization had started to decline in size (765 field extension agents in 1993; 400 agents in 1997; and 300 in 2001). The overall view was that these developments affected the performance of the cotton subsector, which is of strategic importance for the national economy and rural households in Benin: it contributes around 15% to the gross domestic product, and 80% to export revenues. In 1998 the private sector set up a national cotton stakeholder forum on implementing the cotton productivity improvement strategy (*Forum national sur la stratégie à mettre en oeuvre pour l'amélioration de la productivité cotonnière au Bénin*). The forum recommended that the private sector (input supply and cotton ginning) should support the costs of agricultural extension services.

In the early 1990s the input supply in the cotton sector was liberalized. Through competitive bidding, input supply in cotton production zones was allocated to private enterprises, such as the *Société de Distribution Intercontinental* (SDI). SDI decided to share the costs of agricultural extension through a support programme that started in 1999 and lasted for two years. In 1999, the Cotton Association (*Association Interprofessionnelle du Coton* or AIC) was created as part of the reform of the Benin cotton subsector. AIC regroups private-sector actors, including cotton producers' organizations. In June 2000, AIC organized a meeting to discuss issues concerning the performance of the cotton subsector. It was decided to create a common fund for financing support services for cotton production and marketing, i.e. cotton research, agricultural extension, cottonseed production and distribution, and maintenance of rural roads. In 2001, this gave birth to a new support programme for agricultural extension, which was a follow-up to SDI support. The Benin Ministry of Agriculture (MoA) is in charge of formulating and coordinating implementation of the agricultural sector policy⁴¹. It is also the supervising authority for AIC and, through its department for agricultural advisory services and professional training, it coordinates the national agricultural extension system in Benin. The MoA

⁴¹ In 2000 the Ministère de Développement Rural (MDR) became the Ministère de l'Agriculture, de l'Élevage et de la Pêche (MAEP), which reflects the focus of its activities on the agricultural subsectors.

delegates responsibilities for daily management of programmes funded by SDI and AIC to the extension department.

5.2.2 INSTITUTIONAL SETTING AND GOVERNANCE

SDI is a private enterprise for input supply (fertilizers and pesticides) with an annual turnover of approximately EUR 7.5 million (varying annually depending on success in tendering procedures). SDI has around 20 staff, of which approximately 14 operate in the field as commercial representatives, including collecting data on purchase orders. SDI's activities are concentrated in the provinces of Albori (the most important cotton-producing zone in Benin) and Borgou in the north, Atacora and Donga in the northwest, plus Zou and Collines in the centre of the country. SDI also has close relationships with local cotton producers' organizations for supplying inputs for crops other than cotton.

The Cotton Association (AIC) is a platform created by three national associations: cotton producers (FUPRO) or the *Fédération des Unions de Producteurs du Bénin*, input suppliers (*Groupement Professionnel des Distributeurs d'Intrants*), and cotton ginnerers (*Association Professionnelle des Egreneurs du Bénin*). This platform of private actors and representatives of the public administration and public-sector services has a consultative nature. The private sector organizes operations within the subsector: logistics for input supply and marketing of cotton; and price setting of marketed cotton⁴². The platform also decides on funding of support services, including agricultural extension and cotton research, through the collected cotton levies.

The MoA delegates the management of agricultural extension services funded through cotton funds to its *Direction de la Formation Opérationnelle et de la Vulgarisation agricole* (DIFOV). DIFOV was created in 1992 and elaborates strategies for agricultural extension and professional training, and also coordinates implementation⁴³. It has a small staff of around 10 people. The *Centres d'Action Régionale pour le Développement Rural* (CARDERS) are the MoA's decentralized structures for agricultural extension at the provincial and district level⁴⁴. District multi-disciplinary teams support field extension agents who are responsible for extension and advisory services in several villages. Extension is considered to be a pillar of the innovation system, including:

⁴² The platform works together with the national *Centrale de Sécurisation des Paiements et des Recouvrements* that manages the flow of funds (payment and reimbursement of credits, payment of marketed cotton).

⁴³ DIFOV is a member of the *Réseau Africain sur les Approches Participatives* that, in 1999, produced a manual entitled: *Participation villageoise au développement rural; Manuel de praticien*. (KIT/Banque Mondiale, Amsterdam/Washington).

⁴⁴ In 2004 the CARDERS became the *Centres Régionaux pour la Promotion Agricole* (CeRPAs) in order to take into account policies for promoting production and marketing chains of crops other than cotton, and to get in line with the government's decentralization policy. In 2003, districts in Benin became Communes with elected governments.

- Dissemination of technologies generated by research.
- Identifying farmers' priorities for research and extension.
- Providing farmers' feedback on technologies to research.

During the cotton boom in the 1980s, the cotton producers were organized (with the help of the CARDERs) into *Groupements Villageois*, which organize logistics for input supply and marketing of cotton. In 1994, village groups organized themselves into apex organizations: FUPRO at national level, full (UDPs) at provincial level and full (UCPs) at district level; each one of these depends on cotton levies for their functioning. FUPRO aims to reinforce the capacity of member organizations, to enhance their participation in agricultural sector policy formulation and implementation, and their role as interfaces within the sector. FUPRO, which is member of AIC, focuses on lobbying and advocacy; UDPs and UCPs give technical and organizational support to the Village Groups. The apex organizations are managed by elected bodies and have a technical staff. In 2003 FUPRO members represented more than 80% of the national cotton production.

5.2.3 PLANNING, MONITORING AND EVALUATION

In both partnership programmes, the extension agents (newly recruited with SDI and AIC funds) are integrated into the agricultural extension and advisory system managed by CARDER. All agents, whether they are being paid through cotton funds or through the State budget, work according to the same procedures. Extension agents target their information on producers groups and farmers' holdings through training sessions, group meetings and demonstration plots⁴⁵. Information to be provided on agricultural technologies is identified in annual village meetings with community representatives. Village Groups play an important role in these meetings since they organize input supply (for cotton and other crops) and marketing (mainly of cotton). Together with the extension agent, groups identify priorities and needs for information and technologies. This facilitates agents focusing on cotton production and related issues. The joint activity programmes are being synthesized at the district and provincial levels and are used to define support activities to be provided by CARDERs and DIFOV. The whole programme forms the basis for proposing the total annual budget, which is subject to negotiation between MoA, SDI and AIC, respectively. These negotiations are almost entirely dominated by discussions concerning financial issues. With support from SDI funding, both CARDERs and DIFOV supervise planned activities for field agents and provide assistance (additional information, training sessions, etc.). Under the AIC-funded programme, DIFOV focuses on monitoring CARDER's management via at least three supervision and support missions during the year in each of the provinces. In turn, AIC focuses on financial and administrative management issues when receiving CARDER reports. All stakeholders involved (DIFOV, CARDERs and AIC) meet for an in-depth programme review every three months. They also organize

⁴⁵ Including *Groupes de Contacts* that are a reminiscent of the earlier World Bank funded "Training and Visit" programme.

annual evaluation missions by multi-stakeholder teams (including NARS representatives) to each of the provinces, which include interviewing local stakeholder representatives.

Initial experience with the AIC programme made DIFOV propose several management improvements such as:

- i Reduce the number of farms to be served by a field extension agent to 240 holdings, in order to ensure regular information provision and other support services and feedback.
- ii Review the tasks of the specialized district extension agents to focus their activities on technical support of field agents and diminish administrative tasks.
- iii Ask village group officials and extension agents to establish joint activity programmes (as a basis for signed agreements) that define responsibilities for both parties involved.
- iv Have the district producers' organizations, the UCPs, assess the performance of the contracted extension agents based on scoring criteria such as: moral conduct, perseverance, documentation, maintenance of the motorbike (provided by AIC), quality of services provided, and relationships with other development organizations.

5.2.4 INSTITUTIONAL CHANGE

The overall aim of the extension partnership is to improve agricultural extension and advisory services provision in cotton-producing zones and thus enhance cotton productivity and production. However, stakeholders' interests varied: SDI wanted to create favourable conditions for using inputs⁴⁶, while AIC wanted to balance cotton production with the ginning capacity available in the country⁴⁷.

A framework agreement was signed between MoA and the Cotton Association (AIC). The Ministry committed itself to:

- i Recruit, train and manage extension agents.
- ii Organize planning and M&E of the programme.
- iii Enhance participation of local cotton producers and their organizations in programme management.
- iv Elaborate procedures and manuals⁴⁸.

⁴⁶ In the two years before the SDI/MDR/DIFOV partnership, the quality of inputs provided by SDI was severely criticized by cotton producers.

⁴⁷ AIC also collects and analyzes data on cotton production. In 2000, AIC noted that overall cotton production stagnated and yields regressed and that there was an imbalance between total cotton production (365 000 tonnes in 1999/2000) and national ginning capacity (600 000 tonnes in 2000) in which the private sector had invested by building new ginning mills.

⁴⁸ In 2004 DIFOV produced an extension manual, the *Guide pratique de vulgarisation agricole au Bénin*.

SDI and AIC were to:

- i Fund the implementation of the programme.
- ii Participate in programme evaluation.
- iii Enhance participation by local cotton producers' organizations for deploying recruited extension agents⁴⁹.
- iv Facilitate the overall management of cotton production and marketing (these last two obligations were specific to the AIC agreement).

Up to the end of the 1990s, a single parastatal company organized input supply for cotton production, ginning and marketing for all Benin. Reforms undertaken in the sector separated all these operations and privatized input supply, ginning and marketing. Still, good coordination of these operations is required, since supply of credit for inputs and reimbursement of credits when marketing cotton are closely linked. One of the AIC roles, as a public-private platform, is to coordinate these operations.

The agricultural services provider's interest is to have access to complementary financial resources for fulfilling the part of its mission relating to public-sector responsibility. An additional clause was signed with the AIC in 2002 to further specify targets and budgets. This agreement defined outcome and impact indicators for a three-year period as follows:

- A 50% increase in village representatives of cotton-producing villages to be trained in participatory methods for identifying the needs for extension services.
- Increased adoption (10%) of improved cotton production techniques.
- Increased national cotton production (almost double), partly by enhancing cotton yields by 35%.

From 2003 onwards, AIC signed separate contracts with DIFOV and each of the CARDERs in order to enhance management transparency and assign clear operational responsibilities.

Under SDI funding, the programme focused on those zones that were being supplied by cotton inputs through SDI. The villages targeted by the programme were chosen according to the overall "area under cotton" (as an indicator for the required input supply). The AIC-funded programme covers all the cotton-producing zones (10 out of 12 provinces); all farmers producing cotton were targeted⁵⁰. The CARDERs' village community approach made extension agents work with all categories of cotton producers. However, the SDI "area under cotton" criteria made extension agents pay more attention to the larger cotton holdings. Although this area target was not used in the AIC programme, extension agents are biased towards larger cotton holdings, particularly when an agent has a relatively large target group to serve. The focus on cotton

⁴⁹ The local cotton producers' organizations (UCPs) are being consulted when identifying the villages where the newly recruited extension agents are to be stationed.

⁵⁰ It is estimated that the SDI programme reached around 13 000 cotton producers, while the AIC programme now reaches more than 60 000 producers.

instead of cotton-based farming systems is seen by all those involved, especially extension agents and farmers, as risking a split with the previously integrated public extension approach.

Both programmes intend to implement mechanisms for enhancing participation by producers' organizations, for example in: consultations for defining duty stations for extension agents, joint priority setting for services to be provided, and assessment of agents' performance. AIC, of which FUPRO is a member, emphasizes effective stakeholder participation in framework agreements. Interviews conducted within the context of this study reveal that actual practices vary, for example only one out of every four Village Group officials interviewed feels that their groups are actively involved in priority setting for agricultural extension. One of the reasons given is that very few Village Groups communicate with their members on issues other than input supply and cotton marketing.

Table 10 Stakeholders' perception of programme management issues

Issues	SDI-funded programme			AIC-funded programme			Farmers
	SDI	MA	PO	AIC	MA	PO	
Equitable access to services	++	+++	++	++	++	++	++
Representation & participation	+++	++	+	++	++	++	++
Accountability & transparency	+++	+++	+	++	++	++	+
Financial sustainability	+	+	+	+++	++	+++	*
Institutional sustainability	++	+++	++	++	++	+++	*

+ = weak; ++ = average; +++ = good * No opinion due to lack of information

5.2.5 EFFICIENCY AND SUSTAINABILITY

All stakeholders consider annual negotiations between clients and service providers to be too time consuming; they often affect recruitment operations and the quality of services (recruited agents often report late for duty). One solution was to offer two-year working contracts to extension agents instead of one-year agreements. In 2002, the World Bank started a support programme for the Benin cotton subsector, for which AIC is the implementing agency. This also includes support for agricultural extension services⁵¹. However, as a condition for this financing, the WB needs to approve the AIC activity programme and budget before implementation can start, which means that the procedures required take even longer. Under both partnerships, the SDI and AIC handled their own procurement procedures for equipment and supplies. SDI also paid salaries and allowances directly to the contracted agents (through the local

⁵¹ The *Projet d'Appui à la Réforme de la Filière Coton* (PARFC), 2002-2006.

networks of Savings and Loan Banks). AIC transfers funds to DIFOV and CARDERs for all other costs. Funds are paid in tranches after previous funds have been properly accounted for.

Table 11 Costs of agricultural extension services supported by cotton funds (USD)

Cost elements	SDI-funded programme		AIC-funded programme		
	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Salaries and allowances	49%	77%	19%	25%	36%
Equipment and supplies	38%	10%	36%	23%	5%
Training of extensionists	6%	6%	2%	1%	
DIFOV* Services			1%	1%	2%
CARDER* Services			41%	49%	56%
Other costs*	7%	7%	1%	1%	<1%
Total	168 024	174 528	1 485 306	1 885 381	1 406 603

* Costs relate to: recruitment procedures, deployment of new recruits, documents production, and M&E.

Overall funding increased by 10-fold when AIC took over; areas were no longer targeted where just one enterprise (e.g. SDI) intervenes and all cotton-producing zones are concerned⁵². During SDI, directly funded costs of CARDER services were not accounted for by CARDER but by SDI itself. Furthermore, CARDER benefited from a World Bank programme that funded the operational costs of the organization. AIC incorporated these operational costs, which explains the cost increases for CARDER services. CARDER accounts for all management extension funds were also included in the AIC funding scheme. CARDER services include collecting data on cotton production that, until a few years ago, was organized by the cotton parastatal.

For the 2003/2004 campaign, funding by AIC decreased for three reasons:

- World market cotton prices were lower than before.
- Investments in equipment for recruited agents had been made during the preceding years.
- After evaluating the initial experience, AIC decided to review allocation procedures in order to improve efficiency.

SDI funding allowed for recruiting new field extension agents, accounting for around 65% of field extension personnel in cotton-producing zones (around 20% of overall field extension personnel). AIC set norms for recruitment: an average of one field agent for every 450 cotton-producing farm holdings in the north of Benin and every 550 holdings in the south⁵³; and one specialized district

⁵² All cotton-producing Benin provinces covered by CARDERs are now included in the AIC support programme: Ailibori, Borgou, Atacora, Donga, Collines, Zou, Ouémé, Plateau, Mono and Couffo.

⁵³ An average number that takes into account all field extension agents, including those who are already employed and paid out of the MoA budget.

extension agent for cotton production in each of the major cotton-producing districts. Some 241 field agents and 32 district agents were recruited on the basis of AIC funds and they now make up 60% of overall field extension personnel.

Mechanisms have been put in place at the village and national levels to reinforce accountability and transparency:

- Planning and evaluation sessions are organized, during which community and VG representatives discuss a range of issues (mainly technical) with field extension agents. Very few cotton producers are informed of their financial contribution (through cotton levies) to the functioning of the extension service and the rights that they may claim. Internal accountability of Village Groups seems to be very weak.
- Supervision meetings and support missions are organized by DIFOV and CARDERs in order to monitor programme implementation according to the contract with the client (AIC). However, producers' organizations are not systematically involved.
- Tools have been developed that allow district producers' organizations to assess the performance of field extension agents, but these may need improvement for reinforcing service quality elements. These tools are also not systematically applied, since service provision is hardly affected by the results.

One of the issues that emerged from the interviews is that, despite the decentralized management of the programme, multi-stakeholder consultation and accountability mechanisms are still very weak for levels other than the local (VG officials – CARDER extension agents) and national levels (AIC/FUPRO – Ministry/DIFOV). Improved accountability and transparency are major issues for AIC officials. Their main concern is to establish clear links between allocated budgets, activities and outputs achieved at the different levels, and possible impact, in order to improve allocation procedures.

Financial sustainability was also a major concern under the SDI-funded programme, since funding depended on a single private enterprise. However, institutional sustainability was assured, by working with the national agricultural extension system. Both financial and institutional sustainability have been improved through the AIC programme, with AIC being a legally recognized institution that is mandated to manage the cotton subsector. CARDERs are fully integrated into the programme; activity programmes and budgets are elaborated for the CARDER decentralized structures, and programme funds are generated through cotton levies. However, AIC members see sustainability threats in the following areas:

- Although framework agreements have been signed, the design and implementation of the programme is largely a “learning by doing” experience, with stakeholders that have divergent and sometimes conflicting interests.
- The programme depends entirely on the performance of the cotton subsector, which in turn is determined by world market prices.

AIC members therefore generally consider that the State and producers' organizations should team up with AIC to sustain agricultural extension and advisory services and to ensure equitable producer access to these services.

During this case study (1999/2000-2003/2004), around 20 FCFA⁵⁴ per kg of seed cotton sold was destined to fund overall support functions for cotton production and the functioning of AIC institutions. Of these 20 francs, around 2-3 francs were destined to fund agricultural extension (i.e. 1-1.25% of the total selling price for seed cotton).

The percentage of extension agents paid for by SDI/AIC may form an indicator for the sharing of agricultural extension costs between the private and public sectors. However, the CARDER's financial charges (staff salaries, infrastructure, etc.) are largely supported from the governmental budget.

5.2.6 EFFECTIVENESS AND RELEVANCE

Stakeholders interviewed find it difficult to assess whether agricultural extension has become more effective through additional private funding. The general impression is that SDI has made extension more effective because CARDER still received considerable funding from the government and related projects. SDI funding could focus on frontline extension. When AIC funding started, CARDER's public funding diminished rapidly and AIC funding was solicited for more than just frontline extension. Also, during the first years of the cotton sector reforms, management of the sector was hampered by difficulties related to implementing reforms. Stakeholders agree that over the last few years overall cotton yields have improved, which may be an effect of improved targeting of extension activities. However, yields in the south of the country diminished while those in the north increased.

AIC considered outsourcing agricultural extension to other organizations besides CARDER. However, the only other alternative is the NGOs. On the one hand, opening extension to other organizations may enhance competition, performance and quality of service provision. But on the other hand, experience by other Benin institutions with outsourcing extension to NGOs showed that very few are interested and specialized in agricultural extension, have the necessary human resources (e.g. NGOs often contract retired CARDER extension agents to do the work), infrastructure and equipment (required for investments).

5.2.7 LESSONS LEARNED

The partnership experience in the cotton sector has led to several "best practices" being identified. The financial resources provided by the private partner are targeted at the operational level i.e. employing field extension agents who provide services to cotton-producing farming communities and

⁵⁴ 1 Euro= 655 FCFA.

households. The establishment of joint action programmes between extension services and village producers organizations also led to a better assessment of extension agent performance by these organizations, and therefore a strengthening of client/service provider relations. All three key actors become closely involved in the management of agricultural extension and advisory services (clients such as SDI/AIC, users such as the producers' organizations and service providers such as DIFOV and CARDERS). This provided for a clear separation between the funding and implementation functions and became an incentive for better defined planning, resource allocation and evaluation procedures. The contracting of service provision with the decentralized entities followed the subsidiarity principle: extension and advisory services were agreed at the village level, support at the district level, with management and supervision at the provincial level.

A number of important lessons can therefore be learned from this review:

- Cotton extension and advisory services on the basis of impact indicators that are related to cotton production may affect the equitable accessibility principles of public services. An effective commitment by both the State and other producers' organizations is needed to ensure accessible services on a demand-driven and performance basis.
- There is a need for commitment and capacity reinforcement of producers' organizations in M&E procedures. They are both clients (providing funds) and users (beneficiaries) of services provided, and a clear expression of their needs will therefore determine the potential impact of services provided.
- New multi-stakeholder partnerships need an opportunity for "learning by doing" to become fully operational and effective, and this is extremely important for organizing sustainable, pluralistic and demand-driven extension and advisory systems.
- Clear links between the activities funded and the related output and impact indicators are essential for assessing the performance of the partnerships.

6 Conclusions

6.1 Introduction

The case studies previously discussed focus on stakeholder-driven funding mechanisms for local/zonal agricultural innovation. They also highlight experience gained with national level agricultural R&D funding mechanisms such as the NARF in Tanzania. Some funding mechanisms included the national level by focusing on a specific part of the innovation system i.e. a particular APVC (e.g. coffee in Tanzania and cotton in Benin). The studies illustrate the special case of local funding mechanisms that emphasize:

- i Either a geographic or commodity focus.
- ii Adaptive research and extension.
- iii Stimulating multi-stakeholder partnerships.

The overall objective of these funding mechanisms is to have both farms and firms, i.e. the clients of technological innovation, fully involved in setting the agenda for innovation development in situations where the planning and funding of R&D is separated from implementation in an enabling environment and policy framework.

In the cases presented, non-governmental stakeholders, including farmers, traders and processors, have more control over the funds (e.g. in ZARFs and the Coffee Development Fund⁵⁵). Although developed to different levels, the present separation between R&D planning/funding and implementation is not yet complete. Although important stakeholders are represented, the lack of capacity, capacity development and policy support seriously hampered a rational separation between funding and implementation. A serious obstacle has also been insufficient feedback and representation between the ZARF MC members and their constituencies. In Tanzania, different zonal funds have varying procedures to avoid the ZARDI public researchers having too strong an influence on the fund management team. However, these procedures proved to be fairly deficient.

The evidence presented shows that although clients can take the lead in preparing R&D proposals, they need capacity development (e.g. Central Zone

⁵⁵ The Zonal Research Director of the TCB currently selects the farmers in the Management Committee of the local ZARF and the Coffee Research Steering Committee, but without guidelines or criteria as to whom these farmers should represent, which results in a “friends only” committee.

researchers in Tanzania assist farmers in developing proposals). Independent scientists and experts may review proposals but how can you avoid aspects of nepotism, tribalism etc.? One way is to make peer reviews anonymous (although the reviewer could still know the lead researcher and may not want the researcher to miss an opportunity for funding). Reviewers could possibly be drawn from a broader region or nationally, as there is little chance of finding independent reviewers at the local level. Another possibility is to enhance transparency e.g. providing booklets (with approved proposals and budgets) to the LG Authorities.

For both the local CGSs and the PPPs in parts of the AIS, SWOT analyses were carried out: during a multi-stakeholder workshop and by stakeholders in Tanzania and Benin. The analysis focused particularly on the effectiveness of the mechanisms, their efficiency, sustainability, and the extent to which they contributed to institutional change in the sense of multi-stakeholder partnerships, client participation, stakeholder ownership and internal organization of service providers. The results of this analysis are summarized below.

6.2 Stakeholder-driven funding mechanisms

6.2.1 A SWOT ANALYSIS OF COMPETITIVE GRANT FUNDS

(i) Tanzania

Effectiveness. The Tanzanian ZARFs have been reasonably effective in providing reports and extension material in “the farmer’s language”, based on an enhanced contribution by farmers and increased feedback from farmers. In some cases the extension leaflets produced have been better distributed at ward level⁵⁶, while the agro-ecological approach used facilitated up-scaling. On the other hand, ZARF effectiveness requires further improvement in terms of: stakeholder communications, involving farmers’ representatives in the Management Committees, including representatives of input suppliers/traders/credit providers, feedback to local government authorities, quality of the proposals (e.g. relevance, timeliness, equity etc.), and above all capacity development of the various actors involved. Effectiveness can also be improved by focusing the grants more on a single “theme” (i.e. an APVC approach, where a single project addresses all constraints of the production chain (including quality, up to processing and marketing), rather than having 20 small projects (at USD 6 000 each) on different topics in different areas of a zone.

Efficiency. In terms of efficiency, there is some concern with respect to the transaction costs of competitive funds. ZARFs in Tanzania received funds from District Governments that matched national/donor public funds, which forced them to become more “downward accountable”. Thus, although progress has

⁵⁶ Also through Ward Agricultural Resource Centres in some districts in Tanzania.

been made in terms of downward accountability to clients and overall transparency, and with respect to improved relevance of research, the management costs of CGSs seem too high⁵⁷, while the results of these funded research projects take a long time to become available to clients, partly due to lengthy proposal approval procedures.

Sustainability. One of the main concerns with agricultural R&D is the need for continuity, as most innovation development processes have a multi-year horizon. CGSs should be expected to support continuity and hence the importance of sustainability, although experience shows that they fall short of expectations. In Tanzania, the districts (between 15-25 per agro-ecological zone) are aware of the ZARFs and their importance, and agreed to contribute to these in zonal stakeholder meetings. However, only a few districts have resulted in such a contribution becoming a separate budget line in the District Agricultural Development Plan (DADP). In most cases the agricultural sector, particularly AR4D, has a low priority in integrated local development. In Tanzania this is the main reason why the local agricultural sector budget is not yet integrated into the local development budget. Members of the ZMTs (Zonal Management Teams) are from the districts and often play a role in other organizations, which contributes to the strength and visibility of the funds. True representativeness is another essential aspect of the ZARF stakeholder committees: do members really represent their organization and speak on behalf of others, and do they have effective feedback mechanisms to their constituency, or do they act mostly in an individual capacity?

In Tanzania, there is a trend where districts seem to prefer direct contract research and tend to stop contributing to the ZARFs, which raises questions about fund ownership. Some of the main reasons for this development are:

- i Poor public relations of the funds with districts and NGOs.
- ii Farmers (also those in District Councils) see the R&D results as public goods and are not ready to pay for these separately.
- iii The capacity for local revenue collection at district level has been reduced.
- iv ZARFs are only seen in relation to certain projects responding to broad regional priorities, which may not apply to a particular district and hence the switch to contract research.

Institutional change. The establishment of multi-stakeholder CGSs is in itself an institutional change, but competitive funds are also expected to have effects on the effectiveness and efficiency of the entire AIS, its links both inside and outside, and the performance of the individual actors. Client ownership of research funding has increased with enhanced farmer awareness, but this can erode fast as feedback mechanisms are considered weak. In response to this issue, districts and ZARDIs have instituted District Research and Extension Liaison Officers (RELOs), as well as Zonal Research and Extension Liaison Officers, respectively. These new officers, as well as the ZARFs, have contributed directly to stronger relationships between research, extension

⁵⁷ Often higher than the 10-15% goal in Tanzania.

(village extension officers) and farmers (farmer research groups and farmer field schools). Although agricultural communities are becoming part of the AIS through ZARFs, a challenge remains in terms of researchers listening to farmers' voices, either directly or indirectly (at district level). Farmers often only have contractual arrangements and interactive learning is almost non-existent. Some categories of farmers have even more difficulty in having their voice heard, e.g. subsistence farmers, part-time farmers and female farmers. Strengthening the role of farmers, also in relation to CGSs, therefore remains a key challenge.

(ii) *Benin*

Effectiveness. The Competitive Agricultural Grant Mechanism (FCRA) in Benin has contributed to a more effective and relevant research planning cycle, as these are better directed at farmers' problems. The quality of research programme proposals has been enhanced through closer involvement of researchers and pre-extensionists, resulting in higher numbers of generated and disseminated technologies. However, the mechanism does not lead to the funding of strategic research activities such as germplasm collection and basic seed production, particularly for food crops such as sorghum and millet. The more long-term research programmes and research continuity is not guaranteed in a CGS system, which is meant to support zonal adaptive research and pre-extension. The CGS system has to be situated within a larger funding scheme for both strategic and adaptive research. Still, some mechanisms introduced by CGS management procedures (e.g. transparency, communication between stakeholders, accounting for funds received and results obtained) might well be used for managing strategic research.

Efficiency. Researchers do operate more efficiently, through the availability of research means, as well as through collaboration between different NARS actors, which makes planning more realistic. Research duplication is reduced due to better documentation, while PAC feedback leads to better research proposals, also through capacity development and researcher incentives. However, progress in efficiency is at risk due to late availability of funds, poor (and late) feedback by PACs due to time constraints. Short-term funding sometimes leads to the abrupt closure of ongoing research activities. Performance orientation still has flaws, such as the lack of incentives for publishing reviewed articles and generating support for the extension of technologies developed, plus the fact that researchers without approved proposals continue to receive their salaries.

Sustainability. The various stakeholders are generally positive about the sustainability of the system, as it gives due attention to capacity development of all actors, such as farmers and village committees within the AIS, while the limited technical capacity of the PAC remains a risk. Donor dependence by CGSs and weak coordination between funding from other sources of strategic research programmes is considered a risk to financial sustainability. Strategies for attracting funds include demonstrating the improved effectiveness and

efficiency of the CGS-related priority setting and review mechanisms in order to attract additional funding. This has worked out in several cases, but some donors like to have the final word when it comes to allocating financial resources.

Institutional change. The FCRA has led to institutional change, such as a stronger NARS with an enhanced multi-stakeholder planning process, including a variety of suppliers (INRAB, universities and pre-extension) and demand, plus enhanced implication of other NARS researchers in development-oriented and adaptive research. However, the entire mechanism is still strongly dominated by INRAB, at least in the perception of other stakeholders, while at the same time ARCs fail to coordinate the various research activities by individual scientists within the context of implementing regional research programmes with well-defined overall aims.

(iii) *For both Tanzania and Benin*

Table 12 shows a comparison between the more traditional block grant systems for R&D (which is in decline), the newly instituted stakeholder-driven CGSs, and local contract research (which is used by more and more districts and developing agencies). The latter generally has the advantage that the client is more directly involved, allowing stronger client influence over the provider, even to the extent that specific providers are chosen. However, an important disadvantage is that districts (in Tanzania) or communes (in Benin) often lack sufficient capacity to develop TORs, monitor progress and evaluate results.

6.2.2 A SWOT ANALYSIS OF COST-SHARING ARRANGEMENTS

(i) *TaCRI-Tanzania*

Effectiveness. The public-private partnership for coffee research in Tanzania, exemplified by TaCRI, has proved to be effective through the successful release of five new Arabica coffee varieties. The release of these varieties now available to farmers has created considerable goodwill for TaCRI. At the same time, concerns exist regarding differential impacts as the coffee fields in the north are being abandoned, while those in the south are expanding.

Efficiency. The coffee sector (TCB) contributes to agricultural research through the cess levies on coffee exports. The public sector, notably through STABEX funds and direct support by the GoT also contributes to coffee research. The current stakeholder control over the research agenda and the privatized implementation of this research form major differences between the past block grant system. The role of the coffee sector stakeholders in Tanzania in controlling how the cess levy funds are spent has been strengthened. This overview by stakeholders and implementation by TaCRI has led to greater efficiency in the use of these funds, certainly as perceived by the public sector. However, no action is contemplated to strengthen the capacity of stakeholders (in TCB or the AGM) to participate fully and effectively. TaCRI recognizes that

Table 12 Pros and cons of different R&D funding mechanisms at local level

Issue	Block grants or core funding	Contract research and PPPs	Competitive grant schemes
Strategic research	Long-term strategic research is also funded	Emphasis is on applied research and pre-extension adaptive R&D activities	National funds are more strategic-research-oriented and focus on local/zonal adaptive research
Ownership	Funds are accounted for at national level and hence local stakeholder ownership is low	High ownership levels at the contracting agency (e.g. district councils or private sector)	Some ownership by fund contributors, less by clients over outputs. Varies with research approach, feedback mechanisms, and representative election/selection procedures
Influence and power over resources by stakeholders	No influence	Strong influence by financing clients (NGOs, private sector, districts).	Limited and indirect power through representation in management and stakeholder meetings
Farmers controlling resources for research	Very indirectly, through ZECs and national elections	In some cases indirectly e.g. through district elections	Directly through MCs
Equity at household level	Depending on priorities and research code of conduct	Depending on priorities and code of conduct with the client	Can be established through screening criteria
Representativeness	Research can pick the most representative sites and districts in an AEZ	Research demand and AEZ concept integrated, improved options for scaling up	Contributions to fund allow most efficient use in terms of scarce research resources
Willingness to contribute	Cost-sharing limited to in-kind resources	High level, with interested clients	Limited, due to ownership issues
Freeloaders	All outputs are public property	Problematic	Problem exists e.g. if not all districts contribute
Incentives for researchers	Low	High	Depending on the CGS guidelines
Overhead and transaction costs	Low or non-existent	Mainly marketing	Significant, due to management and M&E
Competition	Only through quality	Between different providers	Between different R&D proposals
Access to resources	Only for public institutions	Contracts based on specific TORs and covering all costs	More independent in implementation; co-financing not covering all costs

Source: Case studies for this publication.

the cess funds for research belong to the stakeholders (traders and farmers). These stakeholders have only limited influence through TCB and the AGM. The system therefore still has its weaknesses, which relate to inefficient communication, e.g. between stakeholders within the TCB, and the untimely

transfer of funds from TCB to TaCRI (partly due to TaCRI's enhanced share). Although the farmers/producers consider that the cess funds belong to them, Farmers' Organizations are poorly represented on the TCB and have little direct control because they can only influence TaCRI's priorities through direct interaction.

Sustainability. The present coffee PPP is sustained by private cess funds and public STABEX funds. Eventually the STABEX funds will need to be replaced by other public money or through increased cess funds. Coffee-sector stakeholders have expressed a willingness to increase the cess contribution from the present 0.75% to 1.20% of the coffee auction sales. TaCRI also argues that the two million beneficiaries of smallholder coffee innovation justify support by the public sector⁵⁸. Other opportunities relate to establishing an endowment fund, for which STABEX funds could be used. Major threats to the sustainability of the public-private funding arrangement for coffee research are therefore:

- i Potential problems in the transfer of the public contribution from STABEX to the government.
- ii Poor accountability to stakeholders could lead to waning support by the private sector, as some farmers already consider the cess for TaCRI as another tax. In recent years low coffee prices and the consequent reduction in coffee production have resulted in lower cess funds, which currently cover only 20-30% of TaCRI's overall costs, causing difficulties in recruiting qualified staff due to poor remuneration packages.

Institutional change. The PPP for coffee research is in itself a significant institutional change. Coffee-sector stakeholders have increased their ownership over coffee research and TaCRI is in effect owned by the coffee sector rather than by the government⁵⁹. The PPP is reflected in the TCB composition: non-public-sector stakeholders have the majority on the Board. In addition, strong stakeholder involvement has been institutionalized into the participatory planning process. The public sector is currently not providing special support to address socioeconomic issues, as these have already been incorporated into the research agenda by Farmers' Organizations (e.g. the role of FOs in coffee quality control). The AGM should probably play a stronger role in setting the research agenda because board members are not playing this role adequately, nor are they downward-accountable to their constituencies. TaCRI has also not yet developed a clear strategy for addressing aspects such as very poor households, gender categories and crosscutting themes such as HIV/AIDS, even though the institute is benefiting from public funds.

⁵⁸ In the case of TRIT, the public sector is indeed seen as having a role to play; actually the GoT has three roles in relation to supporting TRIT (pers. Com. Ndunguru): production of public goods (long term), direct support to the private sector and facilitation of private activities.

⁵⁹ Dr Ndunguru (TRIT) argues that these three conditions are to be met by TaCRI (and TRIT) to perform for the sector: stakeholder control, accountability and strong relationships with farmers' organizations.

(ii) *Agricultural extension in Benin*

Effectiveness. The public-private partnership in the cotton sector has become effective in terms of research, extension, feeder road maintenance, cottonseed production and cotton fibre classification. Recruitment of front-line extension agents (that suffered most from structural adjustment measures) has been boosted and has affected the partnership at the level of farm households and village communities. Cotton extension (via service contracts based on real needs) is more effective, also through strong involvement by FGs and FOs. However, the service is not only concentrated on cotton-producing areas and cotton farmers, but in particular on the medium-sized and larger farms. It is the farmers who live near the extension officer that benefit. The contract between the private sector and the public extension service is a way to assist cotton farmers at reasonable costs.

Efficiency. The efficiency of the extension service has been enhanced through its flexible performance-based temporary contracts. However, the cumbersome and lengthy negotiations between public and private agents, in combination with late disbursements, have caused a delayed start to field activities. The system of awarding short-term contracts has not resulted in enhanced professionalism or increased system transparency.

Sustainability. The private financing and capacity development of public extension is seen as an important contribution to a sustainable extension service (CARDERS). The cottonseed management problems relating to cotton marketing by the private AIC, also due to inadequate communications between stakeholders, forms a risk for the partnership. This is further aggravated by the vulnerability of AIC due to its dependence on the cotton sector, which in turn depends on the world market. Public extension organizations are still learning to work with private actors such as AIC. Public commitment to the partnership is not expressed in terms of additional funding or emphasis on strengthening the public human and financial resources, and is further aggravated by a lack in continuity, as extensionists have no secure job.

Institutional change. The private sector leaves the management and monitoring of extension agents to the public institutions. Other stakeholders such as farmers' organizations, village groups and MoA are all involved in the annual planning and M&E, which has led (de facto) to a decentralized and devolved national extension programme. However, institutional change is still vulnerable, as other stakeholders are not fully involved (non-AIC members in the private sector) or have limited capacity (farmers' organizations).

7 Best practices and lessons learned

7.1 Stakeholder-driven funding mechanisms

The R&D funding mechanisms analyzed aim to increase ownership by sector stakeholders for enhancing agricultural innovation. The role of stakeholders in managing funds for technology generation, dissemination and application therefore remains of key importance. However, these stakeholders need to play this role effectively, which requires capacity development as well as commitment and vision. Addressing the former requires greater emphasis on (joint) learning-by-doing, while the latter can be developed through cost-sharing and matching-fund principles. The main challenge in both CGSs and financing partnership arrangements is to enhance the inclusion of the private sector and facilitate participation by real farmers' organizations with a true constituency.

7.2 Competitive grant schemes

Experience gained with the CGSs discussed yields best practices and lessons learned on stakeholder ownership, efficiency, sustainability and performance of funding mechanisms (this study; Blackie et. al., 2003; WB, 2005).

Ownership. With respect to ownership of services provided, multi-stakeholder participation in allocating resources, accountability for resources used by researchers and communication between stakeholders are all major incentives for farmers' organizations and other stakeholders to move priority setting and become involved in managing research for development (as in Benin). However, internal accountability within FO's remains a major weakness. While researchers are very well informed about what became of their proposal, very few farmers follow the process through. Concerns exist in relation to the ownership of CGSs at local levels in Tanzania. The purpose of ZARFs is not sufficiently clear to farmers and local governments. Although districts are interested in contracting research services, they prefer direct contracts with researchers, as the ownership of district-level funds in a CGS is limited. While local councils have made progress in terms of ownership over CGSs, farmers' organizations and the private sector are still insufficiently involved in resource allocation. In the CGSs presented, districts do not perceive a clear relationship between the funds to which they contribute and the R&D projects that are approved, e.g. in terms of location or district priorities, and therefore districts see their CGS contributions as a tax.

The financial commitment to agricultural R&D is not a normal budget line, so it is often assigned a low priority. CGS funds are seen as belonging to researchers rather than to districts or communities. Closer involvement by district representatives, FOs and the private sector in the fund management committees will lead to a revised research agenda that is more innovation-focused and hence creates greater multi-stakeholder ownership. However, CGS management procedures are starting to establish client/user – service-provider relationships (resource allocation, accountability, transparency) that need further capacity development on the client/user side. The private sector is becoming more involved in R&D, but the scale is still limited, and mistrust between public/private sector innovation development support still reigns.

Efficiency. The CGS funds, particularly at district level, have high overhead costs. Cash flows and timely disbursements are problematic, as are transparency, external audits and downward accountability. An efficiency-improvement programme based on careful analysis and capacity development towards attitude changes and communications requires increased emphasis. The costs of the participatory planning, monitoring and evaluation cycle need to be carefully considered, e.g. in terms of frequency and planning levels. Even with full district contributions and matching funds, the size of CGSs has been modest compared to the overall R&D funding. This frustrates the CGS drive towards local accountability and stakeholder involvement. The competitive mechanisms may not always be functional (e.g. in the absence of a sufficient variety of technology suppliers) but is well worth considering developing. Over the last decade, public-sector institutions have received long-term support for capacity development. This is certainly not the case for stakeholders in the private and civil-society sectors.

Sustainability. Major concerns still exist in relation to the sustainability of local funds: firstly due to stagnating LG contributions, but also due to unreliable national public funding, mainly due to short-term donor horizons and low priority for innovation development at the local level. The limited public funds are rarely used for matching the private-sector funds or for involving FOs in planning and managing the funds. CGSs need to sign agreements or MoUs with LG entities with respect to contributions to the fund, plus reach agreement with the private sector, local industries, traders, and access commodity cess funds, for matching funds to support specified R&D projects. Sustainability of CGSs also depends on the overall design of funding and management of both strategic and adaptive research and extension, as well as the various roles that stakeholders play in the agricultural innovation system.

Performance. Performance by CGSs in Tanzania has not been analyzed in terms of their contribution to agricultural innovation. The scaling-up of results of CGS-financed R&D projects in a few target districts is difficult due to resource constraints. Some districts contribute to CGSs, while other districts are “free riders”. The competition between researchers is often not related to the quality of the research projects that can be extrapolated to other districts, but is based on the capacity to access funds, leading to a repetition of research projects in

other districts, rather than technology dissemination projects. These scale risks can be overcome by including zonal and national levels in the management committees and by financing (pre-) extension activities through the same fund (as in Benin). High-quality applied research is by default a long-term process and, since farmers are excellent innovators and adapters themselves, a few short-term contracts will contribute little to real and significant agricultural innovation. Only the easy problems are tackled and difficult problems are dodged, leading to even lower AIS performance.

It can therefore be concluded that there are several major subsidiarity trade-offs in CGS efficiency (which is lower at local level) and effectiveness (which is low at national level due to lack of ownership and demand). Another trade-off is between the need to have local ownership for sustainability reasons and the impossibility of having researchers present in all districts or in all sectors. The overall picture that emerges also shows that CGSs can only function if there is sufficient willingness, a proper attitude with an acceptance and mutual understanding of the need for wide-ranging changes, as well as capacity by all stakeholders in the innovation system to jointly manage an innovation fund. Key elements include the capacity to articulate demand and prepare demand-driven proposals, incorporate a balanced governance structure, be capable of adaptive research and possess links with producers and stakeholder participation through joint execution, in which rural producer organizations play a key role in adaptive research.

Some of the aforementioned lessons have contributed to a new generation of local CGSs in Tanzania, known as the Zonal Agricultural Research and Development Funds or ZARDEFs. These new funds, to be established within the context of the proposed donor-supported ASDP, are designed to manage a substantial part of public finance for applied and adaptive agricultural research in all zones. The use of public funds will mean certain conditions for research, to ensure enhanced inclusiveness of clients and stakeholders, and all proposals will have to have a credible outside contributing partner (either in cash or “in-kind”). The number of subject matter areas is expected to be limited and priorities are to be set in zonal stakeholder meetings. Proposals will be invited for one specific topic and will therefore compete mainly on quality. The ZARDEFs will also emphasize the need to include uptake pathways and other outreach considerations in proposals, with special emphasis on extrapolation of research results. Another emphasis will be on learning-by-doing for everyone involved in the R&D effort (researchers, farmers, extensionists, LGAs, etc.). CGS efficiency will be improved by establishing separate accounts for:

- i Funding the development of the initial R&D proposals.
- ii Financing of the peer-reviewed and approved R&D proposals.

Establishing a national Tanzania Agricultural Research Endowment Fund (TAGREF) will enhance continuity and sustainability.

7.3 Public-private partnerships

Funding partnerships between the public and private sectors for developing agricultural innovation is still rare in SSA, although some partnerships have been initiated in the export commodity sectors. Although donors have supported this development, overall support by the public sector has been out of balance. PPPs for innovation development are hampered by: insufficient accounting of the actual and hidden costs of the partnerships, the persistent negative perceptions across the two sectors, and undue competition over financial and intellectual resources, leading to ownership problems. However, despite these constraints, there is reason to believe that sufficient common ground exists to create greater opportunities for PPPs in pro-poor agricultural research.

Several recommendations can be made, based on the PPP case studies presented. These relate to the need to identify feasible research problems and opportunities that require research inputs from both the public and private sectors, and that are immediately relevant to small-scale, resource-poor farmers, women and other vulnerable groups in developing countries⁶⁰. In order to improve the local-level relationship between the private and public sectors, the frequency and technicality of the dialogue between the sectors needs to be increased in order to reduce negative perceptions and foster understanding of potential research opportunities. Constructive forums for decision-makers from both sectors could facilitate this dialogue. Other recommendations relate to improving the quality of cost-benefit analysis of PPPs and making information available under the terms and conditions used in agreements for managing risk and liability. The creative use of third-party brokers should also be explored, plus the use of other mechanisms to separate research implementation from priority-setting and financing. Multi-stakeholder discussions on PPPs are also required, as well as on collaborative agricultural biotechnology research with a wider audience, despite any controversy and conflict that such interactions may entail.

⁶⁰ Such partnerships can also be developed/facilitated using CGS funds.

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Annex 1 General guidelines concerning funding mechanisms for innovation

Financial management for demand-driven agricultural research management

Tabor et al. (1998) have provided a number of general guidelines on the financial management of agricultural research. Special attention has been given to Competitive Grant Schemes and other research funding mechanisms, such as contract research and public-private partnerships. The focus is on research financing in general, and not particularly on adaptive research.

The Client-Oriented Research Management Approach (Heemskerk et al., 2003) provides guidelines for financial management of local/zonal agricultural research centres, with special emphasis on financial management for client-orientation (see Box 4).

Box 4 Client-Oriented Research Management Approach

The CORMA Guide to demand-driven agricultural research identifies five management dimensions: human resource management, financial management; linkage management; managing the participatory planning cycle; and output and performance management. (Heemskerk et al., 2003).

Various methods and tools to improve financial management of sub-national agricultural research centres based on experience gained in Tanzania and Mali have been documented: incentives for research staff, contractual research regulations, sub-national competitive agricultural technology development funds, budgeting research proposals, ex-ante assessment of research proposals, scoring list for submitted research proposals, scoring form, scientific review, selection criteria for research proposals, etc.

Website: www.kit.nl/development/html/publications2.asp

Guidelines for designing competitive agricultural technology funds

Various manuals and sets of guidelines include elements on designing and establishing funding mechanisms in general, and Competitive Agricultural Technology Funds in particular. The guidelines provided by GTZ (2004) are just one set of examples (See Box 5). The World Bank combines the design and management of competitive funds into a single document on best practices and lessons learned (George, 2000).

Box 5 Design of Competitive Agricultural Technology Funds

Services for development (GTZ, 2004):

This tool allows developers to relate objectives and constraints to the design of a funding mechanism for research, extension or technology development. The steps are:

- 1 Select and state the objectives of the CATF, setting priorities and identifying potential goal conflicts.
- 2 Assess context conditions for introducing a CATF. This is a problem analysis and includes an assessment of the severity of constraints.
- 3 Establish the (actual or planned) design of a CATF by determining the character of several design variables.
- 4 Document, assess and monitor the design of the CATF by noting problems generated by a particular design variables and checking the inner consistency of the design.
- 5 Document and assess the steps in the review procedure.

Website: www2.gtz.de/agriservice/english/tools/technology-funds.htm

Guidelines for managing the CATF

Box 6 Guidelines for Zonal Agricultural Research and Development Funds

Guidelines for ZARDEFs in Tanzania (URT, 2005b):

1 ZARDEF OPERATIONS

Rationale and Outline Structure; The ZARDEF vision; ZARDEF Committees; Zonal Steering Committee; The ZARDEF Technical Committee; Review Panels; ZARDEF Meetings; Inception Workshop; National Annual Research and Outreach Review Meeting; Zonal Review Workshops; Quarterly Business Meetings; Commissioning Research and Outreach Projects.

2 ZARDEF STAKEHOLDER MEETINGS

Defining Stakeholders, Clients, and Collaborators; Zonal and National Research and Outreach Meetings; Stakeholder Inventories; Representation of Stakeholders at ZARDEF Zonal and National Meetings.

3 ZARDEF PROGRAMME DEVELOPMENT

Priority Setting; Data Assembly for Priority Setting; Targeting Problems and Client Groups; Creating a Research and Outreach "Call"; Draft ZARDEF Research Contract.

4 PREPARING A PROPOSAL

Submission of a Concept Note; Draft Concept Note Application Form; Draft ZARDEF Technical Committee Concept Note Review Form; DFID Guidelines for Preparation of a Logical Framework for a Project; Draft ZARDEF Technical Committee/Zonal Steering Committee Project Application Form; Draft ZARDEF Technical Committee/Zonal Steering Committee Project Review Form.

5 ZARDEF PROVISIONAL INDICATORS

6 BUILDING A SUSTAINABLE FUNDING BASE

Risks and Opportunities; Phasing-in of ZARDEFs; ZARDEF Committees; Building Quality and Inclusiveness; Linking to the National Decentralization Policy; Building a Sustainable Funding Base.

There are limited specific guidelines available for local funding mechanisms, which emphasize the role in these funds played by all stakeholders in

agricultural innovation, adaptive research and partnership with the private sector and farmers' organizations. Examples have been developed in Tanzania (Box 6), Uganda (Box 7) and Bolivia (SIBTA's *Fondo Competitivo de Inovacion* www.infoagro.gov.bo/sibta/sibta.htm#q).

Box 7 Procedures for Local Competitive Agricultural Technology Funds

The Client-Oriented Agricultural Research and Dissemination Project (COARD) (Rees et al., 2000):

COARD Agricultural Technology Fund Procedures:

- Design criteria for Competitive Agricultural Technology Funds
- Fund Management Committee
- vManagement Committee Support
- Identification of demand
- vFund announcement and call for proposals
- Application Cycle
- Monitoring and evaluation
- Financial and contractual procedures
- Communications and dissemination
- Conditions and level playing field for all service providers

COARD Tools:

- Evaluation and design of agricultural technology funds
- COARD ATFs Management Committee Procedures
- Project Review Score sheet
- Report formats
- The funding cycle, issues and accountability of funds, and letter of contract

Website: www.coard.co.uk/section02.php

Guidelines for demand-driven funding mechanisms

Although various actors have identified the need to use competitive funding mechanisms to include the private sector in agricultural innovation development, which is co-financed by the public sector, little advice or guidelines have been developed to achieve this.

The EU has published general guidelines for successful public-private partnerships (EU, 2003), while PPP guidelines for research in the health sector are also available (Nishtar, 2004). Many guidelines for CGS include conditions concerning cost-sharing. However, guidelines are necessary for the further involvement of the private sector and farmers' organizations in public-private partnerships for innovation, using both the agricultural innovation systems concept as well as the local competitive grant schemes, in which the public funds are used as seed money for attracting private innovation development funds.

Public-private partnerships

Approaching public-private partnerships for agro-industrial research: A Methodological Framework (Hartwich et al., 2003; Vieira et al., 2002) points out how public-private partnerships contribute to development and indicates how they should be analyzed as development tools. This framework puts public-private partnerships in the context of agro-industrial development and identifies how public-private partnerships for this research can best be developed. This approach targets a wider audience concerned with research partnerships for developing the agricultural sector.

Website: www.isnar.cgiar.org/ppp/pdf/ISNAR.PDF

Annex 2 Checklist for public-private mixes (PPM) for agricultural innovation

Characterizing the PPMs	<ul style="list-style-type: none"> • Why was a particular PPM chosen, on which basis and at what level? • What type of PPM? Mix or partnership? • Which objectives are assigned to the PPM other than generating technologies? • At which level does the PPM operate at the lowest service unit level. • Is the PPM multi-purpose (development) or single-purpose (innovation) or even economic chain focus (e.g. cotton innovation)? • What are the formal and informal management structures of the PPM: coordination, technical advisory committee, merit review panel, secretariat, etc? • How is a balance in the representation from public/private sectors and civil society established?
Sustainability	<ul style="list-style-type: none"> • Why is the private sector interested in sustaining the PPM? • To what extent are the resources influenced by the performance of the chain (prices, world market, etc.) • Options for endowment development • Is the PPM in transition to a more permanent PPP?
Equity and representation	<ul style="list-style-type: none"> • What is demand for innovation with resource-poor producers, and how is it expressed? • How does planning take place? • How are different social categories of users being represented in the decision-making? • Are there equitable benefits of the PPM or does it favour more resource-rich farmers?
Institutionalization	<ul style="list-style-type: none"> • Who controls the funds that are raised through levies (cess)? • Does the private sector also contribute to the resources directly? • Does Local Government have any influence on the PPM or does this come only from Central Government? • How flexibly can the resources be used? • What is the level of integration, holism and links with other actors in the public sector, as well as the role of farmers' organizations?
Planning, monitoring and evaluation	<ul style="list-style-type: none"> • How is demand-driven integrated planning organized at the various (lower) levels? • At what level are priorities consolidated, how and by whom? • How is a mix established between long-term and short-term issues? • Who monitors the performance of the mix?
Transparency	<ul style="list-style-type: none"> • Restitution to the demand side • Ownership of the funds by different stakeholders

Exclusiveness of the fund in innovation development

- What are the other options for the demand side to gain support for innovation development?
 - What are other options for service providers to obtain funds for innovation?
 - Is there any competition between private and public service suppliers?
-

Annex 3 Checklist for competitive funding mechanisms for innovation

Policy context	<ul style="list-style-type: none"> • What is the origin of the Fund? When did it become operational? • Which objectives are assigned to the fund other than agricultural technology development? • What is the focus of the fund? Multi-purpose (rural development), single-purpose (agricultural technology) or even APVC focus (commodity)? • What type of organizations and activities are eligible for funding? • What links does the fund have with (sub-national) area-based policies or (national) sector policies?
Institutional setting and organizational arrangement	<ul style="list-style-type: none"> • What is the institutional anchoring of the fund? • At which management level does the fund operate? At lowest service supplier level (supply) or at the lowest government level (demand-side)? • What are the governance structures: governing board, technical advisory committee, merit review panel, secretariat, etc? How are they related to other institutions? • How are the various stakeholders represented in the governance structures? How are the public/private sectors and civil society represented? • What are the feedback mechanisms between representatives in the governance structures and their respective organizations?
Selection and planning	<ul style="list-style-type: none"> • How are demands for services being identified and prioritized? • At what level are priorities consolidated, how and by whom? • How is a mix established between long-term and short-term interests? • What are the procedures for calls for proposals? What is the format for submitted proposals? • How are proposals screened? What procedures and mechanisms are used to ensure the quality of proposals? • What selection criteria apply to the submitted proposals? • Are there incentives to promote partnerships? If so, which? • How are decisions taken on allocating resources to selected proposals? • Are funds being earmarked? • What kinds of operations are financed through the fund?

Monitoring & evaluation	<ul style="list-style-type: none"> • Are there indicators for M&E of activities financed through the fund? What types of indicators are employed? • How is monitoring organized? Who is in charge of M&E? • Which mechanisms are used to ensure feedback of M&E results?
Participation and social equity	<ul style="list-style-type: none"> • How are client and user categories represented in the governing structures? • What is the participation of client and users in decision-making procedures? • How are interests of the resource-poor taken into account? • How could the resource-poor become more interested?
Empowerment and ownership	<ul style="list-style-type: none"> • Is there a capacity building goal related to the fund? • Which activities are undertaken to reinforce the capacities of stakeholders involved? • Does the fund include training modules for capacity training?
Institutional and financial sustainability	<ul style="list-style-type: none"> • How is institutional sustainability of the fund taken in account? • Are procedures and working methods being documented? Are manuals available? • How much of the total fund is spent on transaction costs? • What about co-financing mechanisms for proposals? Are there links with Local Government funding mechanisms? • Which measures are being taken to improve efficiency of the fund? • How is the financial sustainability of the fund taken in consideration?
Accountability and transparency	<ul style="list-style-type: none"> • What is the fund's awareness level among various producer, private and civil organizations; also clarity about procedures, independence of representatives and management (governance, norms and values, etc.) and information and results. How is restitution of various procedure results (selection, planning, M&E) to the demand side organized? • What about downward and upward accountability of the various governing structures? • How do mandated client and user representatives inform their constituency about the results? • What is the communication strategy of the fund's governing structures?
Results, impact and experience	<ul style="list-style-type: none"> • What activities have been financed by the fund? • Which organizations have benefited from the fund? • What are the main constraints to the fund attaining its objectives? Political, institutional, organizational or capacity related? • How do the different stakeholders perceive the fund? Success or failure? • Which factors contribute to the success or failure? • What impact does the fund have on innovation? • What is its effect on institutions and organizations involved? • What are the lessons learned? Which best practices can be identified?

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Ramanou Fassassi is an agronomist with extensive experience in agricultural extension and advice, training of trainers and community-driven development. He worked as trainer and R&D liaison officer in the national agricultural extension service. As member of the DIFOV of the Ministry of Agriculture of Benin he was responsible for the liaison with agricultural research organisations. In this function he was a member of various committees for reviewing research proposals. He was also one of the main actors in developing and scaling up approaches for community participation in agricultural services in Benin. Since 2005 he is the head of the Service for support to and coordination of agriculture advisory services at DICAF (former DIFOV).

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