

## **Can the way of funding make a difference in local agricultural innovation systems?<sup>1</sup>**

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This paper is based on the results of an intensive review of innovative agricultural research and extension funding mechanisms in Tanzania and Benin by practitioners of these new arrangements. These practitioners comprised many implementers and stakeholders from both the public and private sector, particularly farmers and FOs (farmers' organizations). Several of them were then involved in preparing a series of "case studies" and in participation in workshops in which the selected cases were analysed and discussed. However, the authors of the case studies could not have completed their work without active collaboration by many other stakeholders.

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### **ABSTRACT**

New and innovative funding mechanisms for agricultural innovation at national and local level aim at enhancing financial resource control by research and development clients, while expected to combine efficiency in resource management with effectiveness in innovation development. The emphasis on stakeholder involvement and client empowerment has led to a deconcentration of funding mechanisms to local level innovation systems or to the linkage of funding mechanisms to particular agricultural chains. In this study, different experiences in Tanzania and Benin with the performance of stakeholder-controlled funding mechanisms such as competitive grants and public-private sector matching funds were examined. The specific cases were further analysed through stakeholder workshops, which resulted in a widely distributed publication. Local funding schemes contributed to financial diversification with a greater contribution by research and development clients. However, actual empowerment of farmers and their organizations in controlling the financial resources for adaptive research and advisory services is still a long way off. Downward accountability improved, but real client control of funds stagnated, in part due to the unwillingness of the researchers and the limitations in the farmer organizations' capacity. Some stakeholders shy away from supporting local funds, without their direct control, in favour of bilateral contracts, this also applies to contributions from the private sector, threatening local ownership and sustainability of such funds. Decentralized local R&D funds were found to be more successful and had advantages over other funding mechanisms as a result of: (i) the competitive element which enhanced the quality of research; (ii) the sense of ownership by farmers; and, (iii) the actual resource control by clients. Concerns were however, raised in relation to: (i) the awareness of R&D funds; (ii) the client representation and focus; (iii) the inclusiveness of the fund; and, (iv) the level of contributions by truly local stakeholders, such as the private sector and farmer organizations.

**Key words:** Funding mechanisms; financing mechanisms; stakeholder empowerment; research services; agricultural advisory services; innovation systems

## **Can the way of funding make a difference in local agricultural innovation systems?**

### **1. INTRODUCTION**

The felt need to strengthen the demand side for agricultural service provision for enhancing innovation 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. These institutional innovations 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 (Chema, Gilbert and Roseboom 2003, Carney 1998). 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.

Although in an Agricultural Knowledge and Information System (AKIS) and even in an Agricultural Innovation System (Hall et al. 2001, Rivera et al. 2005, Engel 1997) the emphasis is often on technological innovation(s) in any component of the value chain: making this happen may require substantial organizational and institutional innovation. The 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) (Spielman and von Grebmer 2004, Hartwich, Janssen and Tola 2003, Gill and Carney 1999). 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 (Tabor, Janssen and Bruneau 1998). 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.

This paper is based on KIT Bulletin 373 (Heemskerk and Wennink 2005) and examines some experiences with local alternative funding mechanisms, describing the performance of stakeholder-controlled funding mechanisms, such as CGSs and public-private sector matching funds.

## **2. 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 value chains 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 (Echeverría 1998). 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.

## **3. CASE STUDIES**

This review 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 (see Box 1).

### Box 1 National Agricultural Research Fund Tanzania

**General:** The National Agricultural Research Fund (NARF) was established to provide a mechanism for funding highly innovative and applied priority agricultural research and development initiatives in a transparent financing mechanism and to facilitate collaboration with allied research institutions, notably the Universities.

**Planning, Monitoring and Evaluation:** A function of the NARF Secretariat which made calls for proposals screened by peer reviewers and the Management team with a multi-stakeholder representation. Main M&E tools are field visits and progress reporting.

**Institutional Change:** Stakeholder representatives were mainly from NARS institutions with little representation of established FOs. The fund did not attract closer collaboration between institutions within the NARS as expected, although this was one of its main objectives.

**Efficiency and Sustainability:** Peer review of research proposals was one of the more efficient aspects of NARF operations. The NARF addressed national and zonal priority setting exercises in order to serve farmer needs.

**Effectiveness and Relevance:** There were 107 applications for NARF funding by 2004, of which 22 accepted, 18 funded and completed. As the NARF did not provide funds to cover concept papers or grants to cover proposal writing, all the more than 80 unfunded applications were full proposals. Out of the 107 proposals 53 were reviewed and 33 did not meet the NARF criteria while 54 were sent back to the Zones because they were addressing zonal issues and by this time the ZARFs were at infant stages of operation. At the same time NARF had serious funding problems and had no capacity to address all the submitted proposals.

**Lessons Learned:** The NARF brought about a clearer research focus on key priorities. However, these priorities did not truly involve FO. A true representation of farmer needs has to come from themselves through well established structures in this kind of setting. Closer collaboration between institutions within the NARS has to be developed through a well established M&E process. Flow of funds from contributors need to be stabilized to ensure more dependable research funding mechanism. 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.

**Source:** Lema and Kapange (2005) (in: Heemskerk and Wennink 2005)

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 (see Box 2) (Blackie et al. 2003).

## Box 2 Zonal Agricultural Research Fund Tanzania

**General:** All seven research and development zones in Tanzania formed a multi-stakeholder managed zonal agricultural research and development fund in the period 1998-2005. The total financial allocation to the funds amounted to approximately USD 2 000 0000 for the referred period. The ZARFs were the adaptive research complement to the more applied research focused National Agricultural Research Fund.

**Planning, Monitoring and Evaluation:** Zonal multi-stakeholder meetings establish priorities, followed by a call for proposals. Screening takes place by external reviewers contracted by the Management Committee and proposals are scored based on criteria in the guidelines. Main M&E tools are field visits and progress reporting to the MC.

**Institutional Change:** Although client influence over the research agenda improved, farmers still had little influence. Due to stakeholder pressure, funds became more independent and became AKIS funds rather than research funds, leading to better balance between research and development/extension.

**Efficiency and Sustainability:** Improved financial transparency also through the application of direct costing and activity-based budgeting. Transaction costs still relatively high, but financial diversification improved, also through fundraising activities, triggered by matching funds. Districts have contributed to the fund but flow of funds is stagnating.

**Effectiveness and Relevance:** ZARFs funded some 120 research projects over the referred period with an average of USD 7 000-25 000 per project. The approval rate for submitted proposals varied strongly between zones from 41% to 93%. The total ZARF funding amounted to 6-15% of total research funding.

**Lessons Learned:** Farmer organizations, such as MVIWATA have a limited capacity of voicing farmer's needs, requiring capacity development. Policy support is needed, including for the matching fund principle. Further enhancement of financial transparency and widening of the call for proposals is needed.

**Source:** Lema and Kapange (2005) (in: Heemskerk and Wennink 2005)

## Box 3 District Agricultural Research Funds in Tanzania

**General:** In four of the 22 districts of the Eastern Zone of Tanzania District Developments Funds were established, which had a special allocation for contracting research and development services. A total of USD 200 000 annually was available for the four districts.

**Planning, Monitoring and Evaluation:** On the basis of village action plans, priority constraints are translated into terms of reference by the district agricultural office for potential outsourcing. The DAC is involved in M&E, as well as farmers as co-implementers.

**Institutional Change:** A multi-stakeholder District Advisory Committee is analysing all submitted proposals for its technical content, while the District Council Management team is taking the final decision and contracts the services. Farmer Groups influence the priority setting at local level and participate in district level farmer forums twice a year. The integration of sectoral guidelines and district planning is still on-going.

**Efficiency and Sustainability:** Transparency and downward accountability of the funds needs improvement. Capacity to manage the fund remains a constraint. Funding for agricultural development was mainly from the sector programme and only limited funds through the district development programme. Disbursement in the present system was efficient.

**Effectiveness and Relevance:** Only about 40 % of the funds could be used due to capacity problems at district level. An average district launched two calls for proposals for a particular constraint each year and received an average of 5 proposals.

**Lessons Learned:** The most critical success factors were constant backstopping and capacity development. Constraints were the service provider capacity in terms of socio-economic research and extension capacity. Enhancement of stakeholder participation in the process as well as downward accountability is needed. Improvement of service provider capacity at local level is necessary.

**Source:** Akulumuka and Lugeye, (2005) (in: Heemskerk and Wennink, 2005)

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 (see Box 3).

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 (box 4) (Matthess and Arodokoun 2005).

#### **Box 4 Competitive Funds for Zonal Programmes in Benin**

**General:** The National Agricultural Research Institute, INRAB, has deconcentrated to two zonal agricultural research centres. In each zone a multi-stakeholder driven competitive funding has been instituted in 2001. A multi-stakeholder Zonal Research and Development Committee, ZRDC, is administering the fund, while INRAB is managing. Research proposals are screened and resources allocated by the ZRDC's Project Appraisal Committee, PAC.

**Planning, Monitoring and Evaluation:** INRAB launches a call for proposals, which is based on research priorities established by the annual ZRDC meeting, and are mainly of the adaptive research and pre-extension type. All research service providers are qualified to submit proposals, and proposals are screened and scored for their strategic and scientific relevance, quality of the approach used and cost-benefit ratio.

**Institutional Change:** The ZRDC has been between 75-100 members with at least 50% research clients. Farmer representation in the ZRDC is strengthened through capacity development of representatives and strengthening of commodity groups. The empowerment of the ZRDC in research proposal screening and resource allocation is the main institutional innovation. Researchers in the PAC are rotated rapidly in order to institutionalize the demand-driven approach and change attitude.

**Efficiency and Sustainability:** Although improving researchers are still inclined to emphasize strategic and applied research rather than adaptive research and pre-extension. The reviewing and account mechanisms have improved transparency and confidence to the extent that earmarked funds of projects have started to follow the same procedure. The overhead cost issue, meetings still largely donor-funded, is being addressed through cost-sharing and inclusion of overhead in research proposals. The communication on the programme has increased 'competition' for resources and hence efficiency.

**Effectiveness and Relevance:** Research proposals are better focused on needs and problems of producers. Rejected proposals mainly disqualify for the lack of strategic relevance. Due to the relatively open character of the ZRDC flow of information and knowledge has improved, while participatory research methods have been out-scaled. Although the flow of information from research to extension has improved, information on the rate of adoption and hence innovation system performance, is still limited.

**Lessons Learned:** The multi-stakeholder participation in the proposal scoring and resource allocation has led to transparent decision-making, further strengthened by the rotating membership of the PAC and the enhanced collaboration in the NARS. Development relevancy of research has improved as well as quality of participating researchers. Agricultural extension, as the weakest link, needs to open up and change. The system requires capacity development for farmer organizations and more consolidated multi-stakeholder funding mechanisms.

Source: Gotoechan-Hodonou, Adomou, and Wennink (2005) (in: Heemskerk and Wennink 2005)

Two cases were reviewed concerning Public-Private Partnerships 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 (Box 5)

### **Box 5 Tanzania Coffee Research Institute, TaCRI**

**General:** In March 2001 and the existing public coffee research centres as well as STABEX funds were referred to the newly established privatized Tanzania Coffee Research Institute. TaCRI is a membership-based organization and is managed by a multi-stakeholder management board through a management team.

**Planning, monitoring and evaluation:** A nationwide consultation process of coffee innovation system stakeholders resulted in a strategic action plan. Research proposals are submitted to the board for approval and are based on the strategy as well as producer identified needs.

**Institutional Change:** TaCRI is fully owned by the coffee sector stakeholders. The board, although with government representation, has full autonomy to set priorities. Although the stakeholder's voice in general has been immensely strengthened, the smallholder is still not sufficiently represented. TaCRI supports a process of social capital development, also for priority setting purposes.

**Efficiency and Sustainability:** TaCRI is financed by both public (Government Block grants, Stabex funds) and private sector funds (coffee cess revenues) and through revenue generating activities, such as contract research and extension, which amounts to USD 1 000 000 – 1 500 000 annually. Coffee levies fluctuate with production and require some stability. Downward accountability to members has improved but not all coffee producer organizations are members.

**Effectiveness and Relevance:** TaCRI has shifted its emphasis from a research focus to a coffee chain innovation focus and as such links up with international knowledge providers as with producers through the farmer field school approach. Capacity development in training of trainer's programme as well as information and knowledge management get more emphasis.

**Lessons Learned:** TaCRI has shifted to adaptive research and extension as demanded by stakeholders, who perceive the output as more relevant than before. The main driver of this process has been the participatory planning process. Enhanced financing for coffee research has to come from increased production and not levies. Farmer organizations need strengthening through further FG development and representation. Considering the smallholder nature of the coffee producer and the livelihood system perspective, the public sector is expected to continue supporting TaCRI, complementary to the private sector.

Source: Kapange and Lema (2005) (in: Heemskerk and Wennink 2005)

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 (Box 6).

## Box 6 Public and Private Funding of Agricultural Extension in Benin

**General:** After the freezing of staff recruitment for public agricultural extension, the organization started to decline and national cotton stakeholders recommended involving the private sector in cotton sector extension. In 2000 private entities such as the Cotton Association (AIC) and an input supply company, SDO and the Ministry of Agriculture contributed to the established of a common fund for financing cotton sector support services. The National extension service was contracted by the common fund, financed through cotton levies, for then provision of cotton extension services at provincial and district level

**Planning, Monitoring and Evaluation:** In annual village meetings with community and farmer group representatives, priorities and needs are identified for information and technologies. Plans are synthesized and consolidated at district and provincial level and level of services to be provided by DIFOV is decided.

The final programme is subsequently negotiated between MoA, SDI and AIC, as well as monitored in quarterly meetings. Performance assessment of extensionists by farmer organizations needs strengthening

**Institutional Change:** The AIC forms the public-private platform in which all cotton stakeholders, including FUPRO, the farmer organization, participate. Performance based annual management contracts are signed between the AIC and DIFOV and its provincial centres (CERPA). Focus is on cotton production, and not cotton producing farming systems, although working for all categories of cotton producers.

**Efficiency and Sustainability:** Overhead costs and time allocated by partners can be reduced by signing two-year contracts. Activity-based budgeting needs further development. Performance of the cotton sector in production, as well as prices obtained on the world market, determine the availability of funds for service provision, while conflicting interests can threaten the partnership. Contribution from the state budget is required to balance this.

**Effectiveness and Relevance:** Although cotton yields have improved little is known about impact of the extension services. Involvement of other service providers can enhance competition and quality, but number of qualified providers is limited.

**Lessons Learned:** Equitable access to services requires strengthening of farmer organizations and government commitment. Partnership development requires opportunities for learning by doing. Performance assessment of partnerships needs to be based on the basis of activities, outputs and impacts

Source: Sogbohossou, Fassassi and Wennink (2005) (in Heemskerk and Wennink 2005)

## 4. LESSONS LEARNED

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 stakeholders 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 financiers (donors as well as 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, communication with stakeholders and downward accountability through participatory monitoring and evaluation. 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 approach, including identification of 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 in Tanzania 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 advisory services provision.

## **5. 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).

Although the new mechanisms at local level work well, 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; and, (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 POs, in managing the funding mechanisms and in M&E of the effectiveness of the agricultural research and advisory services provided, is envisaged as contributing significantly to the real strengthening of the entire AIS. Only then can the way of funding make a real difference in local agricultural innovation systems, which aim to contribute to pro-poor development.

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