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Fostering demand-oriented service delivery? A historical reconstruction of first experiences with 'private funding, public delivery' extension in Benin

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Fostering demand-oriented service delivery? A historical reconstruction of first experiences with 'private funding, public delivery' extension in Benin

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This paper examines newly emerging patterns of agricultural extension in the context of wider liberalization of agricultural input supply, marketing and credit provision in Benin. It assesses whether the promises of privatisation were met in the case of the Sasakawa Global 2000 project. Thus, it assesses the extent to which service delivery became demand-orientated, flexible and effective in linking of new technology with complementary institutional designs. In order to gain insight in the dynamics through which such outcomes may be realized, the study zooms in on the process through which the project evolved. It is demonstrated that the PSG 2000 Bénin project did not contribute much to realizing the promises and expectations of privatized service delivery. An important conclusion is that whether services become 'demand-oriented' or not does not primarily depend on the formal funding and delivery arrangement, but rather on the quality of the process in which demand and supply are articulated and matched. This contradicts with the policy assumptions underlying privatization programmes.

Introduction

In many parts of the world, economists' thoughts about public goods and market failure have influenced changes in knowledge-based service delivery of government funded agricultural extension. At the end of the 1980s, the neo-liberal analysis of the agricultural crisis of many developing countries focused heavily upon the failure of a range of governmental agencies, including public agricultural extension services. The proposed remedies stressed the need to privatize and liberalize extension services. Such solutions were in line with the general belief in markets and government withdrawal at the time, and were further advocated with reference to a widespread dissatisfaction with the limited client-orientedness and effectiveness of extension, budget constraints, and reduced public support for subsidizing the agricultural sector.[1] Obviously, implementing privatization and improving service delivery to farmers requires new organizational models and strategies (Bardhan 2000, Beynon *et al*. 1998, Carney 1998, Zijp 1998). As the World Bank, many authors argued, then, the need to shift the focus from the conventional public-funded knowledge-based services to demand-oriented services delivery, which, they believe, should close the 'cognitive distance' between research and farmers (FAO 2001, Garforth 2004, Goovaerts *et al.* 2005, Klerkx *et al.* 2006, Rivera and Alex 2004). Likewise, a widely shared issue

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in this debate is the premise that separating funding from delivery extension makes service provision accountable for the support of clients' needs and responses to innovation opportunities (see Kidd *et al*. 2000, Katz 2002).

The changing mode of funding and delivering agricultural research and extension services in Benin reflects this worldwide trend. The purpose of this article is to critically assess how and to what extent the services delivered became demand-oriented and effective in supporting agricultural innovation. We do so by offering a case study on a project called 'the Sasakawa Global 2000 Project in Benin (PSG 2000 Bénin)' which is one of a series of emerging patterns of agricultural development and innovation in the context of wider liberalisation of agricultural input supply, marketing and credit provision. It was designed and implemented between 1991 and 1997 by managers of Sasakawa Global 2000 (SG 2000)[2] and the Ministry of Agriculture (MAEP). It illustrates the experience of an international development Non-Government Organization (NGO) in its attempts to develop a partnership with a public extension service. This article reconstructs this major and first experience with a form of 'private funding, public delivery' extension in Benin. The project is felt to be particularly worth investigating, because of its initial success, and also because of the original and systemic methodology applied, which centred on the 'Production Test Plots' (PTPs). It is assumed to foster demand-oriented services and address the 'gap' between research and farmers which caused coordination problems, and different norms and expectations with regard to desired outputs. Therefore, a case study of the PSG 2000 Bénin and the results provide useful information for furthering our understanding of privatized forms of extension services delivery.

This article begins with a discussion of the changing landscape of agricultural service delivery in Benin. Subsequently, we develop an analytical framework for assessing whether important promises of privatized service delivery are met. In the third section, we present the methodology. Next, a history of the PSG 2000 Bénin is narrated. This history is divided into two sections. The first section presents the key characteristics and components of the design of PSG 2000 Bénin. The second section provides an overview of the critical events that constituted and shaped the implementation of the PSG 2000 Bénin. In the last section, this article analyses the experience in the light of our research questions and analytical perspective, and concludes with a number of policy lessons. It is believed that these lessons are not only important for Benin, but also for other countries facing similar changing mode of funding and delivery arrangements.

The changing landscape of agricultural service delivery in Benin

Over the three last decades, major changes have occurred in the extension services in Benin. Indeed, before their liberalisation and its subsequent privatisation, extension services belonged to the public sector and had a strong emphasis on agricultural development as a whole. The Regional Centres for Agricultural Promotion[3] (CeRPAs) were created in 1975 as public agencies which also dealt with agro-industry and commercialization. The services they provided included organising farmers into cooperatives, supplying of farmers with inputs, organising the primary collection of agricultural products and providing credit facilities to farmers. This was called *Integrated Agricultural Development* (IAD).[4] The style of intervention used was most definitely *top-down,* and led to many failures and dissatisfaction among policy-makers and extension agents (Von de Luhe 1991, World Bank 1992, Floquet 1994). Prompted by these, by 1985, the *Training and Visit System* (T & V system: Benor *et al*. 1984) was introduced into the IAD model with support of the World Bank. Although, on paper, T & V paid considerable attention to making a contextual

diagnosis of village farming systems, and to the need of extensionists' capacity to listen instead of only talk (Benor and Baxter 1984), the practice of T & V in Benin and elsewhere remained essentially technology push from the top down. In any case, failed extension projects and dissatisfaction among policy-makers and extension agents continued (Tossou 1996, Boon *et al*. 1997, Purcell and Anderson 1997).

It is important to emphasize that the failures and dissatisfaction outlined here are not limited to agricultural extension, or even to agriculture. Indeed, the whole economy was concerned. According to the Poverty Reduction Strategy Paper, the economic situation of Benin was in the late 1980s and early 1990s characterized by a decline in production, a general disequilibrium attributable mostly to an unsustainable budget and external current account deficits, and a failing banking system. The major consequence of this was a national production system facing serious difficulties. In 1989, Benin's government embarked on its Structural Adjustment Programs. The policies emphasized by the International Monetary Fund and the World Bank involved the liberalization and privatization of the economy. The reduction of government interventions was deemed of eminent importance. Thus, the preceding emphasis on the positive role of the government was replaced by a pro-market perspective. In practice, these structural adjustment policies were experienced by many Beninese as being imposed from outside, and although there was little intrinsic belief in them, they were implemented in exchange for the necessary financial support (Alex *et al*. 2002, Bastiaensen *et al*. 2002).

Since 1990, rapid change has occurred in the agricultural sector. The government has liberalized extension services and no longer controls the input and output prices, the provision of agricultural inputs and the marketing of the agricultural products. Furthermore, the government privatized state-owned enterprises including industries, agricultural cooperatives and marketing agencies, most of which were operating with negative net returns. One outcome of these policy initiatives was an increasing participation of the private sector and farmers' organizations in providing extension. Another outcome was the emergence of new *paradigms* on the financing of extension. Key elements of these new paradigms are the withdrawal of the government agencies from services which are considered commercial, an emphasis on financial contributions by farmers in exchange for service delivery, better use of public funds for extension and ownership and accountability through farmers' own extension services.

Different models of extension delivery

'Liberalisation' and/or 'privatisation' of extension can take various forms. In its most extreme form, privatisation implies that governments withdraw completely from the extension arena, which means that all extension services become funded by private persons or agencies, and are provided by private organizations (this is called 'private funding and private delivery'). It is important to note that this is *not* what most advocates of privatisation propose. It is widely recognized that are always important issues of public interest (e.g. environmental and developmental issues) and/or 'market failures' (Carney 1998, Zijp 1998, Bardhan 2000, Katz 2002, Klerkx and Leeuwis 2008b) which justify continued involvement of the public sector. The essence of liberalisation and privatisation, then, is that funding and delivery of services become separated (see e.g. Zijp 1998). Kidd *et al*. (2000) distinguish four major arrangements through which funding and delivery can be organized (see Table 1).

Cell A in Table 1 represents the classical public extension services (public funding, public delivery). The earlier mentioned 'purest' form of privatisation (private funding,

Table 1. Different models to financing and delivering extension services.

	Who delivers	
Who pays	Public	Private
Public	A. Free public extension service *Services financed with public money and delivery by public agencies*, for example: • government projects/programs; • local government.	C. Subsidies to private extension, extension contracts, voucher schemes *Public funds are used to contract suppliers of extension*, for example: • farmers' organizations; • private NGOs;
Private	B. Cost-recovery by government agents *Recouping the cost of public operations*, for example from: • private NGOs; • agro-industries; • agricultural cooperatives; • individual farmers	D. Private enterprise *Services financed delivered by private agencies and paid with private money* for example from • private NGOs; • agro-industries; • agricultural cooperatives; • individual farmers.

Source: Adapted from Kidd *et al*. 2000.

private delivery) is represented in Cell D. Here extension may be delivered and paid for by a range of private sector parties (including individual farmers, consultants, farmers' organizations, input manufactures and distributors, agro-marketing and processing firms, trade associations, NGOs and media companies (Uphoff 1993, Umali and Schwarz 1994). Arrangements in Cell C (public funding, private delivery) include various modes of paying private sector parties to deliver extension. Here the government can choose between 'demand side' funding (e.g. giving vouchers to farmers) or 'supply side funding' (e.g. contracting an private company to deliver specific extension services (see Leeuwis 2004, Klerkx and Leeuwis 2008b). The last arrangement is 'private funding, public delivery' whereby the government uses various strategies for cost-recovery that can provide income to public services (Cell B). We speak of *indirect* modes of cost-recovery when a public extension service gets paid for providing services by *others* than those to whom the services are directed. A donor or commercial company, for example, can pay an advisory organisation to provide free advice to farmers. In the case of *direct* cost-recovery, the farmers pay for the services provided to them themselves.

The new extension environment in Benin

In Benin and elsewhere various arrangements mentioned in Table 1 have been tried and experimented with. In Benin this happened after the government embarked on a donor-supported project called Project for Re-structuring Agricultural Services (PRSA)[5] in 1991. It has been argued that this project was to some extent characterized by divergent expectations. In the view of the policy-makers, the implementation of this project should primarily improve public extension services. By contrast, the donors expected that this project would lead to the reduction of government interventions and progressively to the withdrawal of the state. The donors also expected an empowerment of farmers and farmers' organizations in order to take over extension services (Montaldi 1992, World Bank 1992). However,

despite these different expectations, all parties involved agreed on the need of making the extension services more effective and efficient and more reliant on markets. The restructuring was supposed to make extension more demand-driven and flexible in serving the needs of farmers in general, including also small-scale farmers with limited resources who had been poorly served by public extension services in Benin. In the Beninese context, farming households with less than two hectares of land tend to be regarded as 'small' farms, while households with over 10 hectares of land are classified as 'large' farms.

Since the implementation of this re-structuring project, agricultural extension in this *new extension environment* has been operationalized through various arrangements, involving a wide range of actors in both the public and private sector. In this article we focus on an early experience with 'private funding, public delivery' mainly through an indirect cost-recovery strategy, with Sasakawa Global 2000 as the private funding party. In addition, some of the costs of extension where incorporated in the prices for inputs charged to farmers (direct cost-recovery). This as part of a wider methodological extension approach which was labelled Production Test Plots (PTPs), which was regarded as a new way of combining farmer involvement, packaging technology, and providing credit.

Analytical framework and research questions

From a theoretical point of view, the main expectation from privatisation of agricultural service delivery would be that service delivery becomes more effective and efficient. While the issue of efficiency is undoubtedly important, our primary interest in this paper is first and foremost in whether and how service delivery has become more effective. We recognize that questions about 'effectiveness' are never easy to answer, as its evaluation depends on arbitrary choices regarding 'effective for what and for whom?' In this article we distinguish several dimensions of effectiveness, derived from literature on agricultural development and innovation.

Match between experienced problems and offered solutions

Agricultural extension (as well as research and other services) have often been criticized for providing messages, options and solutions that did not fit with realities on the ground. That is, they did not match well with the problem views, perceived opportunities, priorities and/or the bio-physical and/or social context of the intended beneficiaries. Effectiveness of service delivery implies that 'supply' becomes matched to (articulate and/or latent) 'demands' or 'needs'. In privatisation discourses this is often referred to in terms of a wish to foster 'demand-driven' service delivery (Rivera and Alex 2004). As the problems that people experience tend to change over time, *flexibility* in service delivery is an important aspect in this respect as well.

Catering for diversity

In the last decades many studies have indicated that agricultural development does not necessarily evolve in one direction. Farming households have different compositions and starting positions, may be characterized by different livelihood strategies, and may have diverging styles of farming and preferences for the future (Van der Ploeg 1990, Chambers 1997, Leeuwis 2004, Tittonel *et al*. 2005, Adjeih-Nsiah *et al*. 2007). Thus, one could argue that effective service delivery implies that services are geared and/or adapted to diverse audiences.

Fostering co-evolution of technology change and institutional change

Currently, innovations are no longer looked at as consisting of technology only, but rather as successful combinations of 'hardware' (i.e. new technical devices and practices), 'software' (i.e. new knowledge and modes of thinking) and 'orgware' (i.e. new institutions and forms of organization) (Geels 2002, Smits 2002, Leeuwis 2004). In other words, technological change in agriculture is often impossible if this is not accompanied by simultaneous changes in the rules, procedures and forms through which e.g. input supply, marketing chains, credit provision and labour are organized. Thus, innovation depends on effective collaboration in a network of interdependent societal actors, and does not originate only from knowledge creation in research stations, agro-firms and universities. It has been argued in this light that the conventional repertoire of agricultural extension services (i.e. technical advisory activity and persuasive campaigns) needs to be supplemented with more facilitative modes of intermediation and communicative support aimed at e.g. building networks, developing shared visions and understandings, articulation and matching of knowledge demand and supply, conflict management, and collaborative innovation design, including also institutional innovation design (Hall *et al*. 2001, Clark *et al*. 2003, Leeuwis 2004, Dormon 2006, Hall 2006, Klerkx and Leeuwis 2008b, Sanginga *et al*. 2008). Thus, indicators for this dimension of 'effectiveness' include attention for development of new institutional arrangements that complement technology, and the use of new modes of intermediation to gain sufficient support and agreement in networks regarding new 'orgware'.

In connection with the above, this article investigates to what extent there was attention for the above mentioned dimensions of 'effectiveness' during the process of shaping and implementing the 'private funding, public delivery' Sasakawa Global 2000 project in Benin. Thus, the emphasis in this study was not on making (as is often done in project evaluations) a quantitative assessment of farmers' views regarding the project, or on the kinds of audiences included or excluded in privatized systems. Instead, we were interested in the processes and mechanisms that played a role in the project, and through which actors worked towards (a) creating a match between problems and solutions, (b) catering for diversity, and (c) balancing technical and institutional change. This because we want to avoid treating development interventions as a black box, and subscribe to the view that these can best be understood and improved by making a contextual analysis of social practices through which active agents pursue their interests and priorities when interacting with projects (Long and Van der Ploeg 1989). This is why the study is set up as a process history, in which different episodes and critical moments are reconstructed ex-post. In this way we hope to generate lessons on mechanisms and processes that may influence the effectiveness of privatized service delivery. More specifically, the research questions regarding the process of enacting and shaping Sasakawa Global 2000 project were:

(1) how and to what extent does the process reflect an effort to make services 'demand oriented' in the sense that solutions offered (a) matched with problems experienced, and (b) were adapted over time?
(2) how and to what extent does the process reflect an effort to adapt services delivered to diverse audiences?
(3) how and to what extent does the process reflect an effort to facilitate the development of complementary institutional arrangements that create conditions in which farmers can adopt technology?

Methodology

The process history is based on multiple sources, including key informant interviews, life stories or life career studies, situational and event analysis. The first interviews started in March 2005 in the boardroom of the MAEP with the national coordinator of CeRPA's management. The coordinator was asked to provide the names of ten key informants who had played an active role in the implementation of PSG 2000 Bénin. In the second place he was asked to describe the similarities and differences between groups of three. In other words, he was asked to describe in what ways he considered two of the key informants as being alike and yet differentiated from the third. Through these different triads of elements and the focus on critical events, the researcher gained an in depth understanding of how the coordinator experienced and evaluated the process and the role of different actors therein. When relevant for the analysis, this research strategy was repeated with other key informants, so that a network of relevant relationships, as defined and experienced by respondents, transpired. It was crucial in this case to adopt this strategy because our research was carried out 10 years after the end of the implementation of PSG 2000 Bénin: there were no opportunities to accompany extension agents on field trips and during village meetings.

Eventually interviews and discussions were conducted with two policy makers from the MAEP, 26 extension agents from the CeRPAs, and two researchers from INRAB (National Institute for Agricultural Research). Discussions typically focused on the collaborative relationships between the MAEP and SG 2000, the new form of packaging technology, critical events during the implementation, the conflicts experienced (including the process through which these were dealt with) and the impacts of the project. Furthermore, appropriate historical documents, articles, and project progress reports were analysed for background information on actors, their strategies and relationships. In addition 206 interviews were conducted over a period of two years (January 2005 to July 2007) with farmers and farmers' organizations who were involved (or not) in the implementation of PSG 2000 Bénin. These farmers and farmers' organizations were from two villages: *Somè* (District of *Abomey-Calavi*) and *Assrosa* (District of *Bonou*). In line with the general trend (as reported in project evaluations, see e.g. Nubukpo and Galiba 1999, von Pischke 2000) both villages were regarded as successful in terms of initial adoption of the technological package. However, at a later stage the village of *Somè* was seen to be more problematic than *Assrosa* in terms of the sustainability of institutional arrangements that were developed in the course of the project. We felt that selecting villages that differed in their level of success would contribute to drawing lessons about the PSG 2000 extension arrangement.

Analysis focused first on identifying critical moments in the history of the project; that is, moments that respondents remembered as significant for one reason or the other. Subsequent analyses focused on those events that were deemed relevant by several respondents. Various materials, perspectives, stories, excerpts and figures were brought together around these events, and re-examined with our research questions in mind.

The project design – key characteristics and components of the new approach

In order to further contextualize the experience, it is necessary to describe the nature of the funding and delivery arrangement in some detail. Similarly, before describing the project's journey, it is important to clarify the nature of the extension and other services that were supposed to be delivered at the outset of the project. The latter includes a clarification of the extension methodology, the technological package and the provision of the input credits.

Nature of funding and delivery arrangement of PSG 2000 Bénin

PSG 2000 Bénin was a project supported by the SG 2000 and the Beninese government. It was one of the first extension projects undertaken after the liberalisation of extension delivery. The project aimed at bringing a new agricultural technological package to farmers in a rapid fashion. After a pilot phase that lasted one year, support of small-scale farmers was obtained, and the funding by SG 2000 and MAEP for a five-year period started in 1991. Key characteristics in the definition of the funding and delivery arrangement include the cost sharing. The MAEP provided the start-up budget related to logistics, equipment and staff salaries and allowances. In 1991, the managers of the project established what Galiba (1994, p. 4) called a *modus operandi*; that is, a quite simple management comprising working relations between PSG 2000 Bénin and the CeRPA managements. SG 2000 funded training of extension agents and farmers, input credits and the PTPs. Thus, the funds flowed from the politico-economic committee to the CeRPAs who, then, provided different services to farmers (see Figure 1). These services included farmers training, provision of advices, support to the implementation of the PTPs, and distribution of the inputs (seeds, chemical fertilizers, etc.). Hence we are dealing with a form of indirect cost-recovery, where a private NGO pays part of the extension costs on behalf of farmers (Leeuwis 2004). This is operated in a supply-side financing mode with CeRPA at the receiving end (see Katz 2002, Rivera and Zijp 2002, Klerkx *et al*. 2006).

This was combined with a form of *direct* cost-recovery. The strategy adopted was to incorporate the cost of the extension services into the cost of inputs provided to farmers (see van den Ban 1997, Sogbohossou *et al*. 2005). Hence, we can speak of direct cost-recovery (i.e. farmers pay for service delivery themselves) through a 'detour' (the costs were added to the input package, and hence less transparent). The cost of a bag of 50 kg of chemical fertilizers was officially fixed to $9 (against $6 before the privatisation). Contracts between the CeRPAs and the farmers were involved in these transactions. One important element in these contracts was that at the harvest, the extension agents returned to collect payment in cash or kind. Other contracts between the CeRPAs and the SONAPRA (*Société Nationale pour la Promotion Agricole*) provided the farmers with chemical fertilizers. In addition, contracts between CeRPAs and specific farmers' organizations provided the farmers with improved seeds.

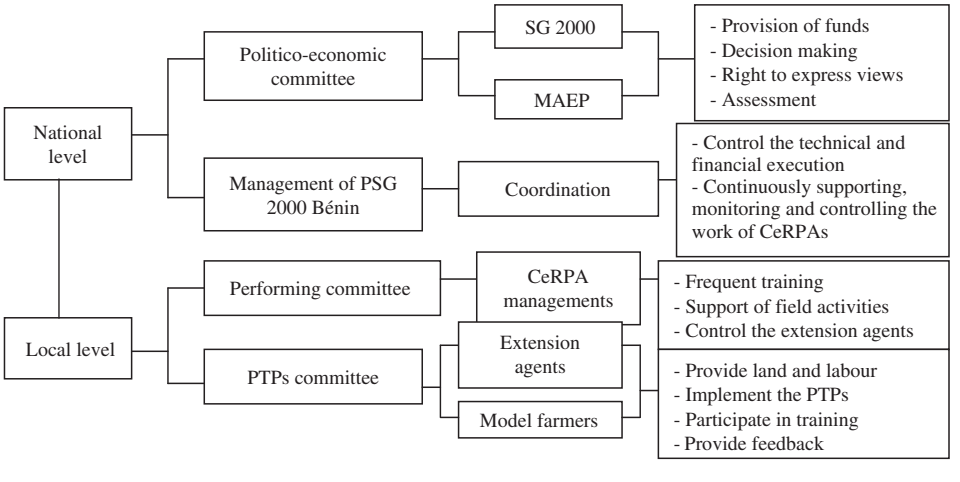

Figure 1. Main actor-networks involved in the design and implementation of PSG 2000 Bénin.

The nature of services: extension strategy, technological package and input credit

As we have indicated above, PSG 2000 Bénin aimed at bringing a new technological package to small-scale farmers. The strategy implemented by the managers of PSG 2000 was a combination of *individual and group extension*. This is obvious in the premise which was at the heart of the proposed strategy: 'What a farmer hears, he rarely believes, what he sees in his neighbour's field, he doubts, but what he does himself, he cannot deny' (PSG 2000 1993, Galiba 1994). In the first stage, some carefully selected and trained 'model farmers' were mobilized and exposed to the technological package. In the second stage, each model farmer (labelled 'godfather') was invited to identify 10 neighbouring farmers (labelled 'godsons') in order to form a cluster to be exposed to the new technology in the next agricultural season. And so on. The emphasis was on direct farmers' participation on farmer-managed demonstration plots called PTPs. A PTP consisted of 5000 m^2 where farmers tested the technological package in comparison with their traditional practices on another 5000 m^2. The project required that these plots were owned by the participating farmers; in the Beninese context – where land can be privately owned – this means that farmers were expected to have individual title to the land.

The PSG 2000 Bénin concentrated at village level on maize production. The technological package proposed to farmers' PTPs consisted of a high-yielding variety of maize and the application of chemical fertilizers: 200 kg/ha NPK and 100 kg/ha urea. Note that this dosage was the double of that recommended by research (Aholou and Hounyovi 1999, Wennink *et al*. 2000). The small-scale farmers received the inputs for the PTPs on a credit basis. The PTPs provided the farmers hands-on experience with the new technological package and supposedly a *learning school* with neighbours. Thus, they had the opportunities to access and test the technologies and evaluate their effectiveness before taking the decision to integrate them into their farming systems. PSG 2000 Bénin also stressed cooperative action. The idea was that this would in turn create organized 'grassroots' groups as a condition for influencing agricultural policy change. Also, cooperative action was seen as an important requirement that would allow PSG 2000 to gradually reduce support of farmers after a while; effective group activity would ensure continued access to credits and inputs.

Important critical events in the PSG 2000 Bénin journey

The journey of PSG 2000 Bénin has been described in numerous documents and project progress reports (see MDR 1992, 1993, 1996 and 1997, PSG 2000 Bénin 1993 and 1996, SG 2000 1993). With this amount of information available, it is not surprising that a wide range of authors (Galiba 1994, Gléhouénou 1996, Vissoh *et al*. 1997, Nubukpo and Galiba 1999, von Pischke 2000, Hounkonnou 2001) have analysed the impact of PSG 2000 Bénin on the extension service landscape in Benin. While many of these studies focus on outcomes, we zoom in on the process. We present the critical events in the journey of PSG 2000 Bénin and show how the interactions between SG 2000, the MAEP and the farmers affected the dynamic of services delivery. The first of these events is the implementation of PSG 2000 Bénin and the initial successes.

The implementation of PSG 2000 in villages and the initial success

According to PSG documentation, 1738 small-scale farmers were mobilized and enrolled as 'model farmers' at the beginning in 1991. Interviews with farmers and extension staff

suggest that these tended to be relatively higher educated farmers (i.e. 'those who know how to read and write') and/or others who belonged to the local 'elite'. According to the managers of PSG 2000, the number of small-scale farmers to be expected in 1992 should be at least 17,380 if each model farmer mobilized effectively 10 neighbours. However, according to the managers of CeRPAs, the number to be mobilized could not go beyond 4000 since few farmers had sufficient owned land (and labour) to allocate 5000 m^2 to a PTP plus an additional 5000 m^2 to a traditional practice maize control plot. In March 1992, a total of 3150 small-scale farmers were mobilized (see PSG 2000 Bénin 1993, p. 19) and participated in either core or support activities to the implementation of PSG 2000 Bénin in villages (see Table 2). In 1993, an additional 1833 PTPs were established, while the 1738 first generation of PTPs dissolved after having had two years of support (see next section), so that the number of PTPs grew to 3245 (see Table 2). Note the all formal participants of the project were male (hence the reference to 'godfathers' and 'godsons'), which resulted from the fact that commercial maize production is typically a men's affair in Benin. When the reports were searched on the issue of the involvement of women in PSG 2000 Bénin, no evidence of women involvement was found.[6]

This gradual expansion of the project was not without difficulties. One of these difficulties concerned the integration of the PSG 2000 Bénin into the extension agents' time planning and their control over two quite separate processes: PTPs in some villages and T & V demonstration plots in other villages. Several problems had to be overcome. In the T & V approach farmers were organized into groups called Contact Groups (GC) consisting of 25 to 30 farmers per village who gathered together one day per week. What was proposed in the definition of PSG 2000 Bénin was new and unfamiliar to most extension agents. Instead of organizing farmers into groups, each farmer implemented the new technology on his own farm. This meant that the extension agents should follow these farmers in each village and PTP-by-PTP and provide the required expertise, quantity of improved seeds and chemical fertilizers to the farmers. While the extension agents' previous tasks were not cancelled, this posed the problem of how to organize an effective time-system with the farmers knowing that the different activities (soil tillage, sowing, fertilizing) needed to be performed in a short period: two or three days after the rain.

Despite these practical problems and the fact that many farmers had insufficient owned land to allow them to participate, the program was in the first years seen as a success in

Table 2. Progress of PSG 2000 Bénin from 1989 to 1996.

Years	1991–92	1992–93	1993–94	1994–95	1995–96
Funds ($ x 1000)	710	710	–	–	–
New PTPs implemented by 'godfathers' and 'godsons'	1738	1412	1833	1714	687
Graduated farmers	0	0	1412	0	0
Farmers leaving voluntarily	0	0	0	119	1027
Total PTPs in operation considering new PTPs and 'graduation' of old PTPs	1738	3150	3245	1833	1714
Mean yield of maize (kg/ha)	3380	2764	3654	3810	–
Village extension agents involved	90	131	140	140	140
Total number of groups	138	165	234	234	234
% recovery of credits	90	64	–	–	–

Source: Compilation of data from PSG 2000 Bénin and MDR progress reports.

several respects. Many participating farmers were enthusiastic: each farmer *did himself* a PTP in his own farm and obtained maize yields were on average two to three times higher than those previously obtained. As one extension agent reported:

> During a field visit that took place when maize plants were at the milky stage, we had the impression that we dreamed. What was it all about? Eighty farmers were watching the process to witness that the technological package that was proposed to them would be implemented as recommended. Forty of them had established their PTPs next to each other to make a single large field of 20 hectares. They had sown their maize at a spacing of 0.8 m between rows and 0.4 m along rows, and chemical fertilizers were applied at a rate of 200 kg of NPK during the first 15 days after planting and 100 kg of urea at tasseling. We were impressed by the field of 20 hectares and the success of the uniform and beautiful maize field. We made an estimation of an average of 3500 kg/ha of maize, against 1000 kg in the traditional plots. (Fieldwork, September 2005)

During evaluations, it was concluded that the approach was paying off, and indeed useful in overcoming the shortcomings of the public T & V system. Gléhouénou (1996) reported that the implementation of PSG 2000 Bénin in villages created initially an enormous interested in learning and attracted the involved farmers. Input credit recovery was relatively successful until 1993 (see Table 2); PSG 2000 recovery rates compared favourably with those of micro-credit experiences elsewhere in Benin. Farmers stored and kept their maize until the period of higher prices, then sold and used part of the outcome to pay back their loans.

The coverage of the project was remarkable: our survey found that 67% of the interviewed farmers had used input credits in the village of *Assrossa* (against 42% in the village of *Somè*) between 1992 and 1993. However, of the farmers interviewed in these villages, only 27% used the dose of chemical fertilizers that PSG 2000 Bénin recommended; more than 68% used less than the recommended rate. The main reasons given by the latter were that they preferred to spread available chemical fertilizer over several maize fields (rather than applying it only on their PTP), that they still 'lacked money' to buy sufficient fertilizer (despite the PTP credit) and faced uncertainties in the sphere of maize marketing[9] (no control of food marketing, seasonal variability of prices, competition between improved and local varieties in the marketing arena).

In all, one could conclude that the PSG 2000 Bénin was a source of much enthusiasm and incentive in the early years. Farmers expressed satisfaction with the services delivered, whereby interviews suggest that they especially valued the credit facilities; the appreciation of the training and information services was considerably less (see also Bukenya 2010). The managers of the project regarded it as a 'success' even if the number of PTPs did not multiply tenfold each year. As we will see in the next episodes, several challenges occurred at later stages.

Emerging dissatisfaction as a consequence of a new graduation policy

Whereas the 1992 evaluation concluded that the approach was paying off, and relevant to bring about successful innovation processes, the higher authorities of SG 2000 developed the idea that – in order to enhance the sustainability of the approach – the support of farmers would have to temporary. In order to operationalize this, a graduation policy was introduced. According to the new policy, the farmers involved would receive 100% of their inputs on credit in the first year. These farmers are called *freshmen* or first-year farmers.

In the second year, farmers were expected to finance 50% of their input needs through cooperative action; they are then called *sophomores*, or second-year farmers. The end of PSG 2000 support was to be marked by a 'graduation' ceremony in the third year, after which graduates would not receive input credit any more, but would continue to get other forms of support from MAEP and CeRPAs to sustain the PTPs. Access to credit and inputs by then should be organized by active farmer groups, and be facilitated by the fact that farmers would earn substantial amounts of capital through application of the technical package in their farm activities. Donor SG 2000 decided that the new policy had to be applied as soon as possible.

Interviews suggest that many farmers were disappointed by the envisaged graduation policy and the reduced access to credit. They argued that a learning school would have to last more than two years. As one model farmer put it:

> Until they are five or six, children would follow and work side by side with their mothers to learn how to care for the food crops in the field and in the family. At the age of eight or 10, they become young boys and begin to work with their fathers. Shoulder on shoulder, they learn how to cultivate food and cash crops. They would also learn about local politics including the different associations such as the *Adji club* mutual aid groups and the market. After 10 to 15 years of practical learning that shaped them to perform their life the fathers decide to marry them. By this time, they receive from their fathers their own plots of land for cropping food and progressively also cash crops. In doing so, they can handle easily their own destiny . . . The extension agent explained that the PTPs is a school; but, if the teacher withdraws, you abandon as also many boys abandon school for lack of teacher or of financial support. (Fieldwork, March 2006)

To further argument their opposition to the envisaged graduation policy, farmers indicated that many of them were unable to finance 50% of their inputs in the second year and 100% the third year. The model farmers who first introduced the new technological package were the first to graduate (PSG 2000 Bénin 1994: 4). Our 2006 survey shows that only 11% of them kept using a part of the new technological package after their graduation in the village of *Assrossa*, against 7% in the village of *Somè*. Many 'godsons' abandoned the process when their *godfather* graduated: only 8% of godsons kept using the new technological package in the village of *Assrossa* against 5% in the village of *Somè*.

Attempts to arrange access to credit through another route

In response to the declining interest in the PTPs sketched above, the managers of PSG 2000 decided in the course of 1993 to carry out a new diagnostic field study in order to increase their understanding of the factors that threatened the success of the programme. As part of this exercise, the managers of the CeRPAs conducted interviews with participating farmers. In these interviews, the model farmers and godsons expressed the view that their demands and needs were completely ignored through the proposed graduation policy, as it denied them sustainable access to credit. Based on the outcomes, the managers of PSG 2000 Bénin came to believe that establishing a permanent credit system in the different villages would be beneficial to supporting the PTPs (PSG 2000 Bénin 1994; see also Gléhouénou 1996).While MAEP tended to be positive about this idea, written correspondence with the donor SG 2000 authorities reveals that they were of the opinion that the project should not change course and start to support the emergence of permanent micro-finance institutions in the villages.

In the fringe of the international seminar organized by SG 2000/CASIN in August 1993 at Airlie House in Virginia (USA), the SG 2000, the MAEP, the Ministry of Planning (MPSEA-Bénin), and the Ministry of Economy and Finances (MEF-Bénin) assembled in order to examine the possibility of implementing a system of loans and credit to be managed by farmers. Also, experts from the World Bank were invited for the discussions. According to respondents, the arguments developed by the managers of PSG 2000 Bénin were constantly repeated during the discussions, and supported by MAEP:

> if we want that the PTPs be sustained, if we believe that helping farmers to find a place in commercial agriculture, and if we expect that farmers preserve their long-term food and economic interests, then we must reorient our alliance around this demand for a credit system because winning the production struggle calls for inputs that farmers cannot acquire without credit. (Fieldwork, March 2005)

This discussion during this meeting apparently represented a turning point in the possibility of working towards a system of loans and credit: the higher authorities of SG 2000 reportedly lifted their resistance inch by inch. Like the MAEP, they came to support the idea of setting up and supporting so called Rural Savings and Credit Funds (CREPs). Accordingly, the MAEP provided $60,000 in order to support the establishment of CREP's logistics and equipment, while SG 2000 supported the CeRPAs to spend time on supporting the organizational development of CREPs (mainly in the form of per diems for extension agents). The money needed for the loans was to be collected solely from savings by farmers. Thus, armed with this financial support, the managers of the CeRPAs embarked on the pilot establishment of CREPs in 25 villages (von Pischke 2000, Hounkonou 2001). Typically, the pilots started with a series of consultative meetings, after which the extension agents worked with the graduated model farmers and their godsons to facilitate the creation of the CREPs through technical assistance, institutional development and organizational capacity-building. The resulting CREPs were made up of general assembly, a managerial committee, and control committee, which were supposed to work together to establish and enforce the rules and procedures for the provision and recovery of loans and input credits. Moreover, the CREPs were expected to help shape the implementation of the PTPs by mobilizing more small-scale farmers. It had also been agreed that they should control all transactions between the village and the SONAPRA, a commercial company selling inputs.

In practice, the managers of the CeRPAs did not entrust and delegate these responsibilities to the various committees. In these committees, CeRPA representatives reportedly had a large amount of influence. Specifically, the extension agents were usually put in charge to control all aspects related to the financial resources and credit application. This meant that the CeRPAs made decisions that affected the functioning of the CREPs, and that the committees who managed the CREPs were not in a position to control all aspects of management. In several villages, tensions cropped up around these new institutional arrangements. In several instances extension agents were accused by small-scale farmers of favouritism and corruption regarding their decision of whom would get credit and who would not. This also led to ill feelings and conflicts within the development of the CREPs. Mistrust between the farmers and the extension agents grew and became public in *Somè* and other villages. Respondents indicated that these conflicts involved not only power struggles between the general assembly and the managerial committees, but also between the managerial committee and the CeRPAs. While the conflicts escalated, difficulties with the mobilization of further farmers continued.

The West African currency crisis increases the urgency to adapt the technical package

An additional serious problem emerged in 1994 with the devaluation of the West African currency (F.FCA). Its consequence was an increase of inputs costs. While the total of amount needed for the implementation of the PTPs was originally US$178,5, the managers of PSG 2000 Bénin had to face increasing PTP costs. As a result the degree of involvement and mobilization in PTPs, organized groups and CREPs reportedly decreased. An important reason for this was that both the technical package and the input-credit services became less attractive in view of the fact that the price of chemical fertilizers increased from 85 to 170 F.CFA per kilogramme (cash price). As indicated in Table 2, the number of small-scale farmers trained in 1994 was 1714, about half the number of 1993. Although the technological package that was promoted by PSG 2000 Bénin had been subject to critique of farmers on earlier occasions, the first serious review of the package was induced by this currency crisis. A multi-disciplinary team was set up and surveyed different sites in order to look for improvements. First, the team investigated farmers' field characteristics and the reasons of farmers' resistance (MDR 1996). In addition, the team evaluated *Mucuna* plots and built a data bank on *Mucuna* cropping in order to investigate whether this crop could be used as a 'green fertilizer' that would allow reduction of the use of expensive chemical fertilizers in the package. Subsequently, and with the financial support of SG 2000, an elaborate network of researchers from CENAP (*Centre National d'Agro-Pédologie*) and IITA (International Institute of Tropical Agriculture) carried out researcher-managed trials in both villages and research stations in order to identify promising ways of integrating *Mucuna* in the technical package. The design team concluded that with a *Mucuna fallow* farmers could reduce by half the recommended dosage of chemical fertilizers (PSG 2000 Bénin 1996, MDR 1996). However, convincing farmers to apply a technological package which included *Mucuna* proved to be a challenge.

An important discord regarding the new package originated from land and labour constraints, as well as land-tenure arrangements. The project design had stipulated from the beginning that participants needed to own the land on which the PTP was established, which in principle excluded tenant farmers. As mentioned earlier, few farmers in the South of Benin actually had plots of this size. In actual practice, therefore, farmers had gone into partnerships with kin (brothers, wives, uncles, etc.) and friends whose farms were adjacent, so that most PTPs involved four or five small-scale farmers. Thus, contrary to what the managers of the CeRPAs presented in progress reports, many farmers did not hold their PTPs alone. Moreover, many of the participating farmers were tenants. In view of prevailing land tenure arrangements, tenants in particular were reluctant to invest resources in a laborious crop (*Mucuna*) that served no other purpose than to generate soil fertility for the next crop. They were considering that the owner of the land could withdraw the plot at any time (see also Mongbo 2000, Adjei-Nsiah *et al*. 2007). Moreover, *Mucuna* occupied the plots of land for two agricultural seasons during which maize production was impossible.

In addition to these hesitations, other feelings of discomfort cropped up around the same period. One of these was that farmers were unhappy about the fact that PTPs tended to be maintained on the same land season-by-season, year-by-year, whereas the traditional practice was that farmers rotate maize with cowpea. Although the PSG 2000 Bénin stressed that farmers were free to move the PTP, this was not very realistic option in practice given the shortage of large plots and the fact that each PTP involved several farmers. The problem was only exacerbated by the introduction of the graduation system, which further reduced the number of people who could participate, and hence the space for manoeuvre in establishing PTPs.

The journey of PSG 2000 Bénin at the crossroads

In view of these coinciding developments, more and more farmers lost confidence and discontinued their participation. In 1996–1997 only 687 farmers were still assisted (see Table 2). Funds needed for the mobilization of farmers and for the establishment of the PTPs were progressively reduced. In 1997, donor SG 2000 decided not to extend the project beyond that year, and thus cancelled the originally planned second phase for the project. A draft project document for such a second phase had been presented to the SG 2000 authorities (MDR 1997). While the cancellation of the budget became effective by January 1998, SG 2000 continued to set up large and dynamic field demonstration projects in other countries – in Ghana for example, where PSG 2000 started in 1987 and continued until 2003. Thus, the aim of PSG 2000 Bénin to help the small-scale farmers to find a place in commercial agriculture by doubling or tripling maize production was eventually not achieved. According to the authorities of SG 2000, lack of adequate infrastructures (micro-finance, transport, etc.) was the main obstacle for farmers to make use the available technologies and sustain commercial food crop production. They argued that it was the governments' responsibility to organize farmers to take over the project, improve infrastructures, and handle their own destiny (Nubukpo and Galiba 1999).

Analysis and discussion

We have seen that the restructuring of extension in Benin led to the formation and negotiation of new working relationships that involved MAEP, SG 2000, CeRPAs and – at a later stage – CREPs. Although expectations among MAEP and SG 2000 converged only partially, an agreement was reached to start the PSG 2000 Bénin. In the course of the project, several challenges emerged and had to be dealt with, leading at times to a redesign of the project (see Figure 2 for a summary).

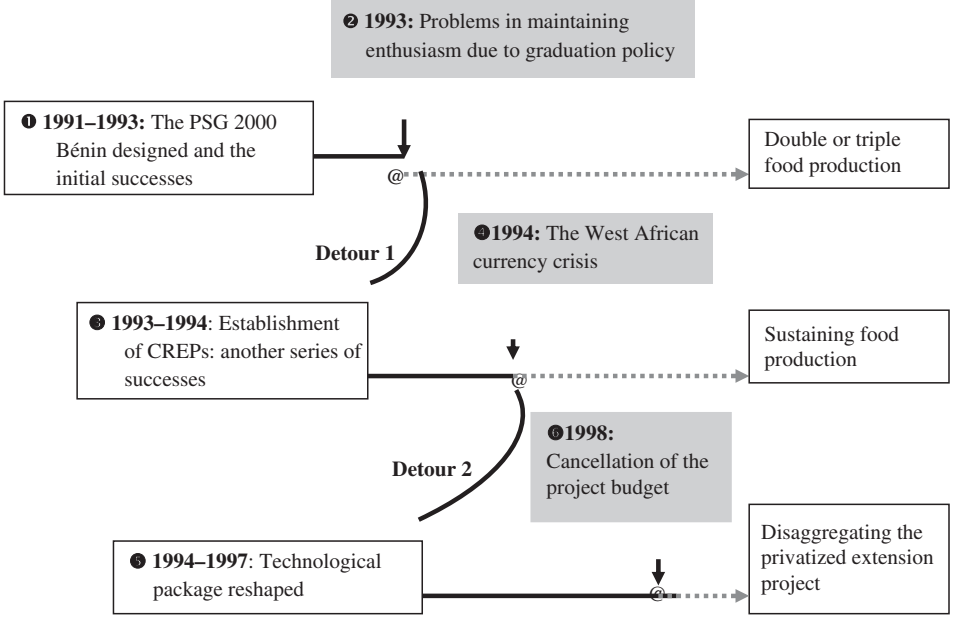

Figure 2. Critical events and the dynamics in the implementation of PSG 2000 Bénin.

In 1993, the contestation of the graduation policy led the managers of PSG 2000 Bénin to take a first detour from the initial agreements, and negotiated that the project would support the development of a credit system. Also the goals and expectations of the project were modified. Initially the objective was to 'triple food crops production'. After yields indeed improved significantly in PTPs (from about 800 kg/ha before 1991 to about 2967 kg/ha: see PSG 2000 Bénin 1996, MDR 1997, Nubukpo and Galiba 1999), the goal was widened towards 'sustaining food crops production' to allow for the support of institutions such as CREPs. While the implementation was progressing by 1994, the managers had to cope with increasing costs of inputs due to the devaluation of the West African currency. The consequence was a decline of farmers' motivation. Within three years the initial technology was reshaped. Through a second detour a new technology was elaborated and negotiated.

An important question is how these dynamics must be evaluated in view of the objectives and expectations that underlie these new configurations in service provision. Below, we return to the issues raised in our research questions, and reflect on the attention given during the process to making services demand-oriented (question 1a), fit for diverse audiences (question 2), adaptable over time (question 1b), and broadened towards facilitating the development of institutional arrangements (question 3).

Demand-orientation and diverse audiences: whose demands?

In this case we see that there are two private parties who contribute financially, and whose needs, interests and demands could steer delivery. When we look from the farmers' perspective, we see that there is evidence of initial enthusiasm with regard to what is offered through the PSG 2000 Bénin. Farmers get a technical package that works initially, since there is sufficient and financially attractive provision of inputs, credit and marketing outlets, coupled with intensive attention in the form of individual extension. A relatively large number of farmers embark on the project and adopt the technology. However, when we define 'demand-orientation' in terms of an adequate match between solutions offered and the contexts and problems that farmers were experiencing (as expressed in research question 1a), then we see a number of tensions. It is clear that in some respects the package is not tailored to the situation of many farmers, most notably the available land and plot sizes of farmers and the prevailing tenancy arrangements. However, these frictions initially do not pose serious problems since farmers manage to circumvent some of the project rules, condoned by local extension agents. When in the course of time responsibility for credit, input delivery and marketing is shifted away from PSG 2000 Bénin and receives less support, we see that the package becomes less attractive and feasible. The later introduction of *Mucuna* in the package (after the currency crisis) further reduces its attractiveness, especially for tenants. Thus, we can conclude that the technologies offered did eventually not match well with the problems setting in which farmers operate, even if they seemed to be in demand when the project temporarily created conducive conditions. This simultaneously demonstrates that farmers' demands are not fixed, but arise in interaction with a changing context that includes the project itself.

In relation to research question 2, a striking characteristic of the packages that are introduced is that they are uniform – one package is supposed to cater for the needs of all. At no point in the process do we see an effort to provide tailor-made services to specific audiences. This seems to ignore the fact that diversity among farmers is usually high, and that multiple pathways and patterns of development may co-exist (van de Ploeg 1990, Leeuwis 2004). Diagnostic activities to gain a better understanding of the farmers' situation are initiated relatively late in the project, and still fail to capture some relevant aspects of

the context. What transpires from this is that, even if farmers now pay for service delivery through a detour (i.e. a levy on input prices), they are still not in a position to actually steer what is on offer. Instead, they basically adapt and cope with the extension services that PSG 2000 Bénin provides. They become increasingly unhappy about the services offered, but have few mechanisms to make their demands and interests count.

The above needs to be understood in the context of the presence of another private party whose financial contributions are far more significant, and who indeed seems to exert a great amount of influence: the main donor, SG 2000. Many ideas and elements of PSG 2000 Bénin originate from SG 2000 concerns, ideas and projects in other African countries: the orientation towards commercial food crop production; the emphasis on farmers who own substantial amounts of land; the technological package; the PTP approach; the graduation system, etc. Although the PSG 2000 Bénin is managed jointly by SG 2000 and MAEP, respondents suggest that SG 2000 perspectives tended to prevail in the negotiations between the partners, even if the episode of the establishment of CREPS shows that SG 2000 at times gave in to ministerial concerns. It is relevant to note here that the concerns and interests of local public extension staff seem to have mattered less. Their difficulties with combining PSG 2000 Bénin work with their regular job, and their early warnings that the PTPs set-up would run into problems due to land and labour constraints, were largely ignored.

Overall, we see that different actors involved with the project (e.g. farmers, funders, policy-makers, extension staff) have different expectations and interests, and thus have different ideas of what the project should offer and how. In other words: they pose different 'demands' on the project. Eventually, the 'demands' catered for can be regarded as a negotiated outcome, whereby – in this case – farmers had little leverage.

Adaptability and the facilitation of institutional change

As discussed in the analytical framework, research question 3 is inspired by the idea that bringing about innovation requires not just technical advisory activity, but also facilitative intermediary services aimed at building effective alliances and designing new institutional arrangements in networks. Such services might include the articulation and matching of knowledge demand and supply, conflict management and collaborative innovation design. When looked at from this angle, we do see that the PSG 2000 Bénin has made some headway in the sense that both the project and CeRPAs start to assume wider responsibilities that just delivering technical advice. This is visible especially by the active support towards developing CREPs and the attention to establishing farmer groups and organizations as a carrier for further private service provision. Thus, there is attention to the development of 'orgware' as an integral component of agricultural innovation. However, in the design and redesign of the 'hardware' we still see little effort to integrate insights from other actors than researchers. More generally, we see little attention to managing a process of articulating demand and supply of services. Moreover, when tensions and conflicts emerge around e.g. the management of CREPs, little effort is taken to bring in effective conflict management capacity. As a result, the project eventually collapses prematurely.

With regard to adaptability (research question 1b), the history of the project suggests that it has had some capacity to adapt to the changing environment and newly emerging dynamics. Over time programme components were adapted (e.g. inclusion of a graduation systems) and new diagnoses were made which resulted in the design of new institutional arrangements (CREPs), and in the adaptation of the technical package. However, it can be argued that this capacity has been too limited. In retrospect, many sensible adaptations could have been made to e.g. the requirements for participating in the project, the size of

PTPs, the technological package promoted and supported, the integration of this package with existing rotations, etc. Such adaptations were not incorporated, at least not at the level of formal project guidelines and activities.

In all, we see that the PSG 2000 Bénin indeed has to some extent widened the intermediary services delivered, and thus seems to have widened the scope of 'extension'. However, critically important facilitative roles and services for bringing about agricultural innovation were still lacking in this new extension configuration. These include especially the facilitation of a process of demand and supply articulation (with sufficient attention to diversity) and effective services aimed at managing conflict. In addition, innovation scholars (e.g. Leeuwis 2000b, Geels 2002, 2004, Loorbach 2007) nowadays recognize that a realistic time horizon for facilitating meaningful technical and institutional changes would have to be considerably longer than the lifespan of the PSG 2000 project.

The absence of conducive services and time horizons can be attributed to several circumstances. First of all, we must look at the PSG 2000 Bénin as a first experience with new arrangements in extension. In such major transformations, many lessons can only be learned in practice. At the same time it is clear that in its design and philosophy the project still drew on linear models of innovation as well as on outdated and/or incomplete views on the possible roles of extension and intermediaries therein. Finally, the project was carried out by the existing public extension organizations, and relatively little effort went into changing the organization set-up, mandate, management culture and competencies of extension staff. Similar difficulties were also found in a study by Van den Ban and Mkwawa (1997) who argued that extension agents are only able to work with farmers in a more participatory and demand-driven way if their own training and supervision are also conducted in a participatory and demand-driven way.

Conclusion

The discussion above suggests that the form of privatisation adopted in the PSG 2000 Bénin project did not contribute much to realising the promises and expectations accompanying this international trend in service delivery. While the main source of funding was a private donor NGO (SG 2000) in the reported 'private funding, public delivery' arrangement, the main pattern of funding did not fundamentally change when compared to the conventional 'public funding, public delivery' arrangement. Funds still flowed conventionally from a central unit (managed by SG 2000 and MAEP) to the 'supply side' i.e. the public extension service. Farmers themselves too funded part of the extension services delivered, but the mechanism used (a levy on inputs) and relative magnitude of this (when compared to SG 2000) were not conducive to farmers having effective steering capacity. Instead, the private donor and to a lesser extent the Beninese government remained in the driving seat. The packages introduced, and the conditions under which farmers could participate remained to be decided upon in a rather top-down fashion, and did not well anticipate farmers' conditions and the diversity among them. Thus, the study suggests that more radical forms of reforms may be needed. One may, for example, adapt the reported 'private funding, public delivery' arrangement by shifting from supply-side funding to demand-side funding, using e.g. vouchers or delegation of decision-making power to farmers. Alternatively, one could introduce forms of private delivery, outsourcing and competition among service suppliers.

While indeed such more radical changes are perhaps worth investigating, it is important to signal that our study also indicates that changing the formal funding and delivery arrangement does not automatically result in realising better service provision. Becoming

'demand-oriented' (in the sense that farmers' demands and conditions are addressed) is not very likely if there is no high quality process through which demand and supply are articulated and become matched and adapted to the (ever-changing) context of a diverse audience. Such a process depends primarily on the quality of the interaction and communication between people, as related to the organization of the process, the composition of the group, the methods and procedures used, and the capacities, aspirations and attitudes of the actors involved (see for guidance e.g. Pretty *et al*. 1995, Van Veldhuizen *et al*. 1997, Heemskerk *et al*. 2003). Such processes need to be invested in by those who fund and implement extension programmes, regardless of the mode and source of funding. Recent studies elsewhere also indicate that the funding and delivery arrangement itself is not a decisive factor. Klerkx and Leeuwis (2008a), for example, show that even when farmers provide all the funds and have full decision-making authority, services provided may still fail to meet their demands due to poor process quality. We can conclude that 'demand-oriented' service delivery requires more institutional change in research and extension establishments (including international donors) than changes in formal funding and delivery arrangements (Hall *et al*. 2001). Such changes should be conducive to improving process quality, and hence need to begin with a recognition that intermediaries (such as extension organizations) may usefully play wider intermediary roles (see also Van der Meulen *et al*. 2005, Howells 2006, Boon *et al*. 2008) and facilitative process services than providing technical advice.

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Notes

1. See e.g. Alex *et al*. 2004, Beynon *et al*. 1998, Leeuwis 2000a, Rivera and Zijp 2002, Sulaiman and van den Ban 2003, Swanson and Samy 2002.
2. Sasakawa Global 2000 is an international NGO working in many developing countries (such as Soudan, Ghana, Nigeria, Mali, Guinea, etc.) and PSG 2000 is the Beninese branch.
3. This was called *Centre d'Action Regionale pour le Développement Rural* (CARDER). But the name changed in 2004 to *Centre Regional pour la Promotion Agricole* (CeRPA) in order to take into account policies for promoting production and marketing chains of food and cash crops, and to get in line with the government's decentralization policy. In 2003, districts in Benin became Communes with the elected local governments.
4. See Tossou 1996; Von de Luhe 1991.
5. This project was funded by many donors: the World Bank (WB), the *Deutsche Gesellschaft für Technische Zusammenarbeit* (GTZ) and the French Government-Funded Agency for Development (AF) and Benin's government (see Montaldi 1992, MDR 1993, World Bank 2003).
6. Indeed, in most regions in Benin, women do not do commercial maize production. They are active in the production of cowpea and leguminous crops (tomatoes, etc.). Even in the Plateau Adja (department of Couffo, South West) where women do maize production, the harvest is used for food and not for commercialisation (see Agbo 1995; Biaou 1997).
7. These findings are similar to those obtained by Tripp (1993) in an in-depth survey of the reaction to recommended technologies in the maize PTPs and implemented by the PSG 2000 Ghana.

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