



Institutional options for rural energy access: Exploring the concept of the multifunctional platform in West Africa

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ARTICLE INFO

Article history:

Received 9 April 2009

Accepted 3 November 2009

Available online 25 November 2009

Keywords:

Energy access

Rural electrification

Women's groups

ABSTRACT

The concept of the multifunctional platform for rural energy access has increasingly been supported by donors in five West African countries since 1994. While it is often referred to as a highly successful concept, recent reviews and interviews with local stakeholders in Mali and Burkina Faso indicate that the high aspirations to be found in project descriptions and early evaluations are only partly reflected in activities on the ground. This paper illustrates how the multipurpose aspects of the platform have made the concept a nexus of potential achievements that are highly valued in the dominant discourse of development, and how including concerns, such as poverty alleviation, gender equity, local democracy, decentralisation and the environment, have attracted donors outside the energy sector. The paper thus argues that, while the integration of multiple technical functions, preconceived organisational set-ups and local fuel production have in fact had limited or even adverse effects on the outcome of the multifunctional platform programme, these virtues have proved essential in presenting the concept at the policy level. This analysis of the dilemma between mobilizing funding and implementing practical programmes provides an argument for building development aid on existing structures instead of inventing new complicated concepts and approaches.

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1. Introduction

The concept of the multifunctional platform (MFP) comprises a technical and organisational solution to increased access to energy, consisting of a small diesel engine turning one or several types of milling machinery and a generator for production of electricity. As an integrated element of the concept, the technical device should be owned and operated by women's organisations and ideally it should be fuelled by biofuel. The MFP has been supported by various multilateral and bilateral and private sector donors since 1994,¹ where the first pilot programme started in

Mali. Today there are ongoing pilot and full-scale programmes in Mali, Burkina Faso, Senegal, Ghana and Guinea in West Africa, and recently also in Tanzania. The concept is at present well established in the development literature on energy and development, where the MFP concept has been referred to as an example of how to provide access to modern energy in rural areas by simple means (see, e.g. Cabraal et al., 2005). Similarly, the concept of the multifunctional platform has achieved great attention at the policy level. In 2001 the Malian President declared that ideally all villages in Mali should have a multifunctional platform,² and although energy generally has a low priority in the Poverty Reduction Strategy Papers (PRSPs) used as political foundation for much donor support, the MFP concept is explicitly mentioned in the PRSP for Mali and Burkina in 2002 and 2004, respectively (MED, 2004; MEF, 2002). It is also visible at the regional level through a regional programme for MFP in West Africa, and the concept plays an important role in the white paper on energy published by the Economic Community of West African States (ECOWAS, 2006).

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¹ Funds for programmes in Mali and Burkina Faso have come from various sources, comprising (i) donor-funded government schemes, such as *le Programme d'Appui aux Initiatives Communautaires de Base pour la Lutte Contre la Pauvreté (PAICB/LCP)* and debt relief funding for Highly Indebted Poor Countries (HIPC); (ii) multilateral agencies such as UNDP; (iii) bilateral donors such as Norway, Switzerland, Luxemburg and France; and (iv) private donors such as the Shell Foundation, Aarhus United, and the Bill and Melinda Gates Foundation. The programme in Mali has been run under the auspices of shifting ministries outside the Ministry of Energy, such as *le Ministère d'Industrie et Commerce*, *le Ministère de la Promotion de la Femme, de l'Enfant et de la Famille* and *le Ministère de l'Emploi et de la Formation professionnelle*. The programme in Burkina Faso has been run under the auspices of *le Ministère de l'Economie et du Développement (PTF-Burkina, 2006; Anderson et al., 2005)* and <http://www.ptfm.net/old/burkina1.htm>; <http://www.ptfm.net/old/mali1.htm> (Accessed Marts 2009).

² According to the webpage, <http://www.ptfm.net/old/mali1.htm> (accessed Marts 2009) at the *conférence des Pays les Moins Avancés (Bruxelles, 14-20 mai 2001)*, the president of Mali, Alpha Oumar Konaré has explained that to achieve sustainable development, each village in Mali should possess a kindergarten, a school, a well, a micro-credit institution, a cereal bank and a multifunctional platform providing water and electricity.

While impact assessments commissioned by the programme present a generally positive picture of the programme in its first stages (Anderson et al., 2005; Brew-Hammond and Crole-Rees, 2004; Diagana, 2001), an internal review of the programme in Mali from 2006 revealed that it was far from achieving its immediate objectives in terms of providing water and electricity, and that about 35% of the 515 platforms installed were still not in operation by the end of 2005, a few years after their installation (MFP review, 2006), and today, three years later, there is no available documentation regarding how many of the installed platforms are in operation. At the same time, programmes continue in five West African Countries. The Mali programme aims to have 1300 platforms installed by 2011,³ and a similar programme in Senegal is aiming at 1000 platforms by 2015.⁴

Against the background of this apparent contradiction between high expectations, positive impact assessments, disappointing results on the ground, and a continuation of similar programmes, this paper explores why the MFP concept has been so appealing to donors, policy-makers and practitioners, and why it has apparently been quite difficult to implement the MFP concept on the ground. At a more general level, the paper thus addresses the dilemma between attracting funding and achieving results. The main argument in the paper is that while pre-conceived concepts that are innovative and address various donor concerns may be successful in mobilizing funding, they are difficult to implement on the ground, where they conflict with a complex reality. Overall, the paper hence provides an argument for building development aid on existing structures, rather than inventing complicated new concepts and for further research, the paper raises the question, what would have happened without any external intervention, or what could have been achieved by providing an enabling environment for enhancing the business opportunities of existing and new mill owners in rural areas, instead of introducing a new competing service based on cooperative ownership by women.

The analytical framework and the research methodology are introduced in the following sections, followed by a brief description of the concept of the MFP and an initial analysis of its mobilizing elements. Then two sections focus on the essential elements of the concept, i.e. multifunctionality and ownership by women's groups. Both sections review the practical achievements related to the specific elements of the programmes in Mali and Burkina Faso, and based on the literature and observations from the author's research they sketch out possible reasons for the low level of achievements. Ongoing programmes and recent changes in the approach are described before entering the concluding section, which explores the overall dilemma between achieving funding and achieving results on the ground.

2. Methodology

The article is mainly based on secondary sources selected through a review of published material about the MFP.⁵ Except for the contribution from Bentaleb (2004), who was involved in early

MFP reviews, there is little if any published information about the MFP programmes based on field studies from independent research institutions. The paper therefore mainly relies on information originating from internal reviews by the MFP team members and consultants hired by the project. A key document here is a comprehensive internal review of the first Mali MFP programme, conducted in 2005 at the end of the programme (MFP review, 2006). This document and two unpublished reviews from the review team (Crole-Rees et al., 2006; Goertz, 2006) are the main sources used in the analysis of the MFP programme in Mali from 1994 to 2005.

Insight on practice, strategies and logics of women's organisations is mainly based on the researchers ethnographic fieldwork for a PhD carried out in two villages in the northern Burkina Faso during 6 months in 2002–2003 (Nygaard, 2006, 2008b). The fieldwork aimed at understanding the social processes set in motion when externally supported institutions are introduced in a local setting, and it had a specific focus on how arenas, which are opened by interventions, are used by different interest groups or strategic groups for positioning and for access to and control over material and other resources? Besides observation and participation in daily life in the villages, the fieldwork comprised various ethnographic methods and close to a hundred formal semi-structured interviews with individuals and groups. Moreover, detailed inventories of ethnic-group membership, family relationships and clientelist relationships involving major post-holders in the towns were compiled.

The understanding of the practice of the MFP programme in Burkina Faso and Mali achieved from the literature review has been enhanced and triangulated by formal interviews with key personnel from the MFP programme in Mali and Burkina Faso,⁶ and by visits to MFPs in Burkina Faso and Mali, among those Balanfina, which apparently has been a showcase for the MFP project in Mali, and which plays an important role in all three impact assessments mentioned above.⁷ To this comes informal talk to a number of development actors in Burkina and Mali, during a three month assignment at the *Fonds de Développement d'Electrification* (FDE) in Burkina Faso in 2007 and during various missions to Mali in 2007–2008. The understanding of the logics of small scale operators producing electricity outside the framework of the MFP programme is based on experience from the field acquired through other programmes related to rural access in Burkina Faso and Mali from 1999 to 2009.⁸

The analytical focus on development interventions as arenas for struggles over resources, described in the next section, has been an important leading thread when collecting data using this pragmatic approach to throwing new light on an under-researched subject. In the preparation of this article, however, it

³ Interview with Yaya Sidibe, Coordinator of the MFP programme in Mali, 22 December 2008.

⁴ <http://www.ptfm.net/spip.php?rubrique13> (Accessed Marts 2009).

⁵ Information on the MFP programme in Mali, Burkina Faso, Ghana, Senegal and Guinea was available at the websites operated by the regional MFP programme, <http://www.ptfm.net/spip.php?rubrique1> by ultimo Marts 2009, and older information was at the time still available at the old project website, <http://www.ptfm.net/old/ptfactudit.htm>. Unfortunately, all links to both the new and old MFP websites were closed when accessing on 26 September 2009. Information can be recovered at the webpage <http://www.archive.org/web/web.php>, or electronic copies can be requested from the author.

⁶ This includes a total of 9 formal interviews with leaders and technicians of the MFP programme in Mali and Burkina Faso, and with agents in the rural electrification agencies, AMADER in Mali and FDE in Burkina Faso carried out from December 2006 to April 2009. To this should be added a large number of discussions and informal interviews with local stakeholders, including representatives from NGOs, government agencies, donors and consultants.

⁷ Balanfina in Mali was visited in November 2008. During the author's visit it was revealed that the villagers only use piped water 3 months a year during the dry season as piped water was considered too costly compared to the wells they have in their yards, and it is therefore not likely that the piped water can explain the increased school performance among girls, as claimed in the reviews. Tin Telout in Mali was visited in May 2008 during a mission to Timbuktu. At the time it had not yet started operation. The MFP in Djomga, Burkina Faso, which was established by an NGO outside of the MFP programme was visited in December 2002 when it was working and later in July 2007, when it was abandoned.

⁸ Mali: Kasela, November 2008. Burkina Faso: Boromo 2000 and 2007, Buena October 2006, Tiebelé October 2007, Zabré December 2007; Tensobentenga and Bougretega November 2007.

has become evident that more long-term field based research is needed to answer questions this article has raised.

3. Analytical framework⁹

This article is based on the assumption that development projects open up new 'arenas' for struggle over resources (Bierschenk, 1988; Olivier de Sardan, 2005). In this context, the concept of an arena refers to 'social locations or situations in which contests over issues, resources, values and representations take place. That is, they are social and spatial locations where actors confront each other, mobilize social relations and deploy discursive and other cultural means for attainment of specific ends' (Long, 2001).

This implies that an arena is not necessarily spatially restricted, but can involve geographically distinct actors. In the present analyses, the international aid community, national development programmes and local women's groups are all perceived as arenas, the extent of which depends on the conflict or resources at stake within them. Institutions such as women's groups responsible for a MFP may constitute arenas in which only members of the institutions are actors. In these cases, the arena is spatially confined to the town inasmuch as that is where the members live. The MFP programme in Mali constitutes an arena that is spatially much wider and includes actors at the village level, extension workers, involved Non Governmental Organisations (NGOs), consultants, and national and regional leaders. The international aid community constitutes a global arena, which includes actors such as competing development programmes, national governments, international research institutions and international donors. Resources at stake at the village level may be economic resources in terms of equipment, access to networks or symbolic resources such as honour. Resources at stake at programme level may be tangible economic resources, working conditions, and symbolic resources such as honour and reputation, which can later be translated into new positions in other institutions. Resources at stake at the global level may be access to future donor financing and symbolic resources such as personal and institutional honour.

4. The visionary concept of the MFP

The concept of the multifunctional platform as defined by the Mali MFP project comprises a specific technical solution in terms of a multipurpose machine – the multifunctional platform – from which it got its name. Besides the technical element, the concept comprises three important organisational elements, which were strongly linked to the donor agenda in the late 1990s and the beginning of the present century. The MFP should (i) be owned, operated and maintained by community-based organisations (CBOs); (ii) members of the CBOs should exclusively be women; and (iii) the engine should preferably be driven by biofuel produced by women. The concept will be described in more detail in the following.

Technically the MFP consists of a small diesel engine, which is mounted on a frame, where it can turn different types of machinery. In its simplest form it is a traditional grain mill of a sort that has been present in West African villages since the

1970s. In its extended form, more advanced equipment such as de-huskers and oil-presses are added, and in its most advanced form, the engine also turns an electric generator for battery charging or to produce electricity to be used for lighting, pumping water or electric equipment such as welders, drills and saws (Burn and Coche, 2001).

Customers for the services provided by the MFP are mainly women, because the services are related to household tasks such as grinding cereals or pressing oil from seeds collected by women. Also electricity production, which often is a concern of men, benefits women by providing light in their homes, and in some cases drinking water, which is usually fetched by women. Customers pay for the services provided by the platform (Brew-Hammond and Crole-Rees, 2004).

Women, however, are not only seen as customers and beneficiaries. A fundamental part of the concept was from the outset that the equipment should be owned, managed and operated by CBOs to which only women could belong (Burn and Coche, 2001). Such institutions are generally referred to as a women's association, '*association féminine*', or women's group '*groupement féminin*', and are managed by a women's management committee, '*Comité Féminin de Gestion (CFG)*'.¹⁰

An innovative aspect of the concept is to substitute diesel by biofuel extracted from jatropha seeds (Burn and Coche, 2001). The widespread Indian-made 'Lister' diesel engines, which are generally used for small grain mills, are able to run on filtered crude jatropha oil. Jatropha plants are drought-resistant plants, a local species that can also be used as a living hedge. Collection and processing of jatropha seeds can therefore create local employment for women, while at the same time being a renewable fuel for the MFP (Henning, 1998).

The objective of the MFP projects was that 15% or around 70 platforms should be fuelled by jatropha oil (Burn and Coche, 2001), but by the end of the MFP project none of the platforms was using jatropha oil on a regular basis (Dembele et al., 2007). The reviews do not address why this aspect of the MFP concept was not fulfilled, but based on information from the MFP website in 2004, the single most important factor seems to have been the low profitability of producing jatropha oil on commercial basis during this period.¹¹ Without going into further details, this indicates that integrating use of jatropha as a fuel in the MFP concept was based on optimistic calculations.

The MFP projects in Mali and Burkina Faso are sustained by various capacity-building components, such as literacy training, training in bookkeeping and training of technicians in maintenance of the equipment, and the projects are sometimes backed by other income-generating project components such as micro-credits (Burn and Coche, 2001, pp. 65–66). The project thus also integrates other mainstream development interventions into the concept of the platform.

A basic MFP, including the engine, grinder, de-husker, alternator, battery charger and housing, costs roughly US\$ 4300. In the first years the project subsidized 20–30% of the cost of the basic platform (Burn and Coche, 2000). This percentage has since been

¹⁰ Formally there is a difference between women's groups and women's associations: women's associations can comprise several women's groups. One village often hosts several women's groups, which for the purpose of the MFP can be organised into one association. In most cases, however, the demand for a platform is taken up by one village group, which locally may therefore be seen as the rightful recipient of the platform. In practical terms the institutions are similar, and the two notions are therefore used interchangeably in this paper.

¹¹ See <http://www.ptfm.net/spip.php?article117&lang=fr>, (Accessed Marts 2009). Personal communication from various Malian stakeholders at the COMPETE workshop in Bamako, November 2008, revealed that, in spite of attempts to use jatropha oil for about twenty years, there are fewer than ten Lister engines in Mali that run on jatropha oil, and they are all part of existing development projects.

⁹ This article draws on insights from two research traditions that have studied the 'interface' between development actors and beneficiaries. The two approaches, which have developed in parallel fashion in the French and the Anglophone worlds, have been termed the 'Actor-oriented approach' (Long, 2001) and the 'Entangled social logics approach' (Olivier de Sardan, 2005).

increased and, according to Crole-Rees et al. (2006), the subsidy was actually 60% in 1999 and 73% in 2005. This may have influenced the MFP programme in Burkina Faso, where the subsidy for community-owned MFPs was set at 90–95% right from the beginning (PTF-Burkina, 2006). In cases where villages are electrified or equipped with water pumps, the subsidy for these installations was initially set at USD 10,500 (Burn and Coche, 2000), but this was later changed to 80% of investment for the electric network (Crole-Rees et al., 2006).

5. The MFP as a mobilizing concept

From an analytical point of view, the MFP concept has two different aspects. The first is its multifunctionality, which enhances the technical output of the device and hence its potential impact. The second aspect is the inclusion of the donor priorities of the time, which may provide new funding opportunities. This section explores how the multifunctionality and inclusion of other donor priorities in the MFP concept may explain the successful mobilization of funding for the programme in the international development arena.

5.1. Multifunctionality: an output-enhancing concept

While, as will be shown later, in practice the user benefits of the multifunctionality compared to its costs seems to be relatively poor, multifunctionality is crucial in gaining acceptance in the international development arena. First, the label 'multifunctionality' provides an impression of an efficient technological innovation: in spite of its rudimentary technical elements, it suggests a technological fix. Secondly, it is the multifunctionality that signals innovation compared to older established concepts, distinguishing, for example, the MFP from the grain mill, which has been in operation in West African towns since the 1950s and which was part of development assistance to rural areas in West Africa during the 1970s into the early 1990s (Béridogo, 1997; Ouédraogo, 1990; Quinn, 2004). Mills were at first donated to village groups,¹² but in line with other village group activities, which turned out to be profitable they were often privatized, and today mills are mainly owned and operated by individual entrepreneurs (Nygaard, 2006). The number of mills in small towns depends on a number of factors such as food crops, tradition, ethnicity and access to roads, but depending on conditions, mills exist in villages down to 200–1000 inhabitants.¹³

Thirdly, it is mainly because of multifunctionality that it is possible to draw a large number of potential causal relationships between the platform and potential 'positive' impacts, such as poverty alleviation, improved health, reduced child mortality and improved primary education. The argument is that extra services such as grinding shea nuts improves efficiency in an

income-generating activity for women and that an extra service in terms of de-husking rice or millet frees time for the women, who would otherwise have done this manually. It is generally assumed that saved time can be used for income generation, thus reducing poverty or for allowing girls to go to school and thus improving education (see e.g. Anderson et al., 2005; Brew-Hammond and Crole-Rees, 2004; Diagana, 2001). Such claims may be sustained under certain conditions, for example: (i) that milling services did not already exist; (ii) that local income-generating activities are possible; (iii) that potential income-generating activities can outweigh the cost of the milling service; and (iv) that time constraints, not tradition, are effectively limiting school attendance, which are often not fulfilled.

However, if the platform also delivers electricity and water, there is room for large aspirations for new impacts, as the potential benefits of electricity and clean water are many. Lighting at the health centre may increase women's health and reduce child mortality. It might improve children's school performance because they can read at night, and it may create extra income for women working after dark. Similarly, the provision of clean water generally improves the health of the beneficiaries and may increase girls' attendance to schools because they are freed from domestic chores. In the literature describing the Mali MFP programme, there are several examples of how such aspirations for potential impacts are used as general attributes of the platform, although as shown below, only a small percentage of the platforms do provide electricity (see e.g. Anderson et al., 2005; Brew-Hammond and Crole-Rees, 2004; Diagana, 2001).

5.2. The multifunctional platform as an all-embracing concept

The MFP concept was developed within the framework of the new poverty alleviation focus in the late 1990s, and in this context it can be seen as an attempt to engage with rural development through an all-embracing concept, which, besides the technical multifunctionality, includes three main donor concerns as quoted below.

The broad intervention strategy of the project has been guided by the twin objectives of providing a *decentralised* and *sustainable* energy supply, and ensuring that the energy supply is *used and controlled by women*. (Burn and Coche, 2001, authors emphasis)

Besides the overall concern with poverty alleviation, gender equity is addressed by the principle of compulsory ownership by women. The donor agenda on decentralisation and local democracy is met by introducing CBOs with elected committees as owners and managers of the platforms, while concern for the environment is included by introducing options for biofuel as a sustainable energy supply.

On top of this are a number of other donor concerns, such as participation, entrepreneurship and increased income generation and agricultural production (Burn and Coche, 2001). The importance of these concerns varies in different descriptions, so the following excerpt should be seen only as an example of how donor concerns are included in a presentation of the concept by one of the actors.

The advantages of its context-specific, bottom-up approach are many for enabling a shift in the way development is practiced. Not only does it have a *direct impact on poverty levels of the rural poor*, it also has significant, and often measurable, *impacts on health, education, and gender equity, as well as on agricultural*

¹² The village group or *groupement villageois* has been the main vehicle for development actors to address rural women and men in West Africa since the beginning of the 1970s. Until the mid-1990s, they were mixed groups of men and women, but due to the gender focus in development aid, they are now separated into women's groups and men's groups (Nygaard, 2006).

¹³ Data from GGY-Consult (GGY-Consult, 2007) and Nygaard (2006, 2008a) show that in Burkina Faso there are several grain mills in villages above 1000–1500 inhabitants and that mills exist in villages in the range of 500–1000 inhabitants. Quinn (2004) reports that in Ghana four villages near Accra with 200–570 inhabitants had 2–3 existing mills for grinding corn or cassava. Information on numbers of existing mills in villages with MFPs in Mali is not available, but mills seem to exist in the majority of the villages with MFPs. Goertz (2006) mentions 'no real need for a MFP' as 'a problem for motivation' and says that 'large villages usually have competing services'.

production, rudimentary industrialization, and the rural–urban drift. (UNDP, 2004, p. 5, emphasis in original).

According to this quotation, the possible impacts of the MFP concept are considerable. Not only does the MFP have a direct impact on the poverty levels of the rural poor, but also a significant impact on health and education and gender equity. In addition, there are impacts on even larger issues such as agricultural production, rudimentary industrialization and rural–urban drift.

These examples illustrate how the concentration of different donor concerns in the MFP concept is used to position the concept in the arena of international development aid, with the result that, in spite of its energy focus, the MFP programme has achieved its funding from poverty-alleviation programmes and various other programmes outside the traditional energy sector.¹

6. Multifunctionality

6.1. Multifunctionality in practice in Mali and Burkina Faso

The MFP programme in Mali aimed at implementing 450 platforms, of which 300 units were to be equipped with an electricity or water network (Burn and Coche, 2001). While the numbers of platforms installed were achieved in 2004, only 19 were equipped to deliver drinking water, and only 7 were supplying electricity through a network (Dembele et al., 2007).¹⁴

Details of services provided by the installed platforms are presented in Table 1, which shows that almost all installations are equipped with a grinder for cereals, while 33% are equipped with a de-husker, 37% with a grinder for nuts, and 33% with a battery charger. Only 7% are equipped with a generator, and only about half of these possess a welding set (Crole-Rees et al., 2006). However, according to Goertz (2006), battery chargers are 'systematically not functional', a claim supported by the MFP review (2006), which notes that although 265 out of 470 platforms (56%) were equipped with battery chargers, only 37 (14%) were in operation.

Table 2 shows that 11 percent of the installations turned out not to be multifunctional at all, i.e. they were just a traditional grain mill. About half the platforms had two services, while 34% had three services, but only seven percent had four or more services. It should be noted that the battery charger, which is systematically not working, is among these services.

Multifunctionality may be simultaneous, i.e. the engine can drive more than one piece of equipment at the same time, or it can be sequential, i.e. the engine can drive one piece of equipment at a time. According to Crole-Rees et al. (2006), except for the battery charger, the services provided by the platform are sequential because each service demands the full power of the engine. This reduces the benefits of the multifunctionality.

The reviews above show that, when it comes to electricity production, multifunctionality was far from being achieved within the first MFP programme in Mali. Consequently, in 2005 the MFP programme signed an agreement with the new agency for rural electrification, *Agence Malienne pour l'Energie Domestique et l'Electrification Rurale* (AMADER), according to which the latter

Table 1

Services available at installed platforms.

| Type of service | % |
|--------------------------|------|
| Grinder (cereal) | 98.1 |
| De-husker | 32.9 |
| Grinder (nuts) (Brayeur) | 36.9 |
| Battery charger | 32.9 |
| Generator | 7.6 |
| Welding set | 3.8 |

N=158 (Crole-Rees et al., 2006)

Table 2

Numbers of services per platform (Crole-Rees et al., 2006).

| No of services | % |
|----------------|------|
| 1 | 11.0 |
| 2 | 47.2 |
| 3 | 34.0 |
| ≥ 4 | 7.6 |

would install simple electricity grids in 72 villages with already established MFPs.

According to an interview with a civil servant at AMADER in May 2008, these installations have been subject to a number of technical and organisational problems, and consequently it was decided to separate the milling part, to be operated by the women's group, and the electricity part, to be operated by a private operator. The private operator was to provide his own motor and generator, and rent the existing grid on specific conditions.

The MFP programme in Burkina Faso seems to have had similar difficulties in establishing electricity grids connected to the platforms. The Burkina Faso programme (2004–2008) aimed at establishing 400 platforms, of which 165 were to be equipped with networks for provisioning water or electricity (PTF-Burkina, 2006). In November 2007, the programme had installed 120 platforms, of which only one had a water network. Detailed information of equipment installed is not available, but according to interviews carried out in November 2007, a large number of platforms were equipped with battery chargers. Several platforms were equipped with electricity generators and welding units, and some platforms were even connected to informal electricity networks supplying nearby houses.¹⁵ The first official electricity network based on the MFP concept was about to be established in the small town of Bitou in November 2007. Because there were several millers in Bitou, it was decided not to include milling equipment in the concept, so in this case the MFP concept turned out to be a single-purpose tool, consisting of only the Lister diesel engine and the generator.

As in Mali, the Burkina Faso programme entered into a general agreement with the rural electrification authority, FDE, to establish electricity networks for sixty MFPs in cooperation with the MFP programme. According to this agreement, FDE would be responsible for financing the electricity part, while the MFP programme would be responsible for financing the milling part, which was operated by the women's groups. In order to reduce transactions costs in establishing such small networks, the first project carried out within this agreement supplied six villages within the framework of a common organisation, in which the milling business was carried out in the daytime, while electricity

¹⁴ Even this may be an overestimate. Goertz (2006, p. 14) notes that 'almost all of the electrical grids are non-functional', while Crole-Rees et al. (2006) state that none of the five (not seven) installed electricity networks were working by 2005. They do not mention any water networks. The MFP review (2006, p. 24) only notes that networks for water and lighting have not been established in a majority of villages.

¹⁵ Interviews, November 2007, with Isabelle Tapsoba, Coordinatrice and Bernard Ouattara, Responsable Technique, MFP programme in Burkina Faso.

was produced at night. In this case a cooperative is the owner and operator of the whole installation, while a women's group rents the milling service in the daytime (Somé, 2007). By the end of 2007, the level of integration of milling and electricity production in future projects was still not clear.

6.2. Challenging the advantages of multifunctionality

Interestingly, developing and promoting a multipurpose device to solve the needs of rural populations is nothing new (Chambers, 1997). One of the best known examples is the development of the animal-drawn wheeled tool carrier, a multi-purpose implement that can be used for ploughing, seeding, weeding and transport. The development of these tool carriers started in 1955 and continued for a period of more than thirty years. During this period, more than fifty different designs were developed in more than twenty countries, and an estimated ten thousand units were produced and distributed through subsidized credit schemes (Starkey, 1988). In his critical evaluation, Starkey (1988) concludes that this implement, which was praised for its universality, in practice turned out to be used as a single-purpose implement poorly adapted to its purpose, and that in most cases users found it so poorly adapted that it was abandoned in favour of single-purpose implements. This example highlights the need to raise the question of the practical and economic advantages of the MFP compared to single-purpose equipment.

The obvious advantage of multifunctionality is that the same engine can be used to pull different types of equipment. This may seem convincing, but only a little thought reveals that, if the multifunctionality is sequential, the economic advantage is reduced to the interest on the investment cost of an extra engine. The life of a combustion engine is mainly dependent on running hours, so if, as an example, it is assumed that the engine can last for ten years being run as single-purpose machine for two hours a day, it will only last for five years being used as a multipurpose machine running two types of machinery for two hours each. This means that, in a life of ten years, the total investment cost will be the same for one multipurpose solution compared to two single-purpose solutions. Only the cost of interest on the investment will be slightly higher for two single-purpose pieces of equipment, due to the time difference in investments. So, as this example shows, the benefits of the multipurpose machine are moderate and seem to be greatly overestimated.

On the other hand, there are some important inconveniences connected with the implement's multifunctionality, the most important being the increased vulnerability of the services. The integration of functions means that all the functions become idle when the engine, which is the most vulnerable part, is out of order or needs repair. This is generally acknowledged in other rural electrification projects, which have reserve engines to be used in case of preventive maintenance or breakdown, but it also reflects the practice of operators outside of the MFP programme.

A growing number of private entrepreneurs in Mali and Burkina Faso are producing electricity in small neighbourhood grids, which are generally supplied by single-purpose equipment producing only electricity (Snel, 2007; Nygaard, 2008a). In some cases, these grids are even supplied with two generator sets, as in the case of Kasela in Mali, where a small, privately owned grid with about 40 connections is equipped with two Lister engines and two generators, apparently in order to ensure security of supply.¹⁶ Also, private mill operators in Burkina Faso are in some cases running two single-purpose pieces of equipment (a grinder and a de-husker) using two engines instead of multipurpose

equipment.¹⁷ This could be because of ignorance of the advantages of multipurpose machines, but interviews have revealed that owners saw investment in two engines as a means to reduce vulnerability. As the operator in Tensobentenga phrased it: 'I need two engines if one gets tired'.

A second problem is the reduced flexibility. It may not always be convenient to have all functions situated at the same physical location. Further, it may cause difficulties that, except for services with low power demands such as battery charging, the multifunctionality is sequential, which implies that it is limited to, for example, grinding cereals in the morning, crunching shea nuts in the afternoon and producing electricity in the evening.

The idea of the multifunctional milling unit, comprising grinders and de-huskers, may be a good practical solution in some cases, but as shown above, there are also disadvantages in integrating many functions in the same device. This is probably why women's groups chose to have an average of only 2.4 services on the 515 platforms implemented in Mali, and why AMADER decided to separate the electricity part and the milling part of the 72 platforms introduced to generate electricity in Mali.¹⁸

7. Women's groups as owners and operators of MFPs

This section will try to shed some light on the practice of women's groups as owners and operators of the MFPs. Based on the three reviews from 2006, it will be shown that the plans for women and community ownership have been far from meeting aspirations, and that this mode of organisation may threaten the long-term sustainability of the intervention.

7.1. The practice of women's groups

The information available in the reviews strongly questions the overall approach of the MFP intervention. About 35% of installations were not in operation by the end of 2005, when the large majority of the MFPs had been running for less than four years.¹⁹ According to the review, 60% of the 'non-functioning' MFPs were the result of so-called socio-organisational problems, which were caused by conflicts at different levels. This could be internal conflicts on the management committee, or rivalry between the women's groups and other village structures, such as the traditional authorities, women's associations, age groups, politicians, etc. (MFP review, 2006). A smaller number (26%) ceased operating due to technical problems, and the remaining 14% due to economic problems. However, technical and economic problems may have their roots in socio-organisational problems (MFP review, 2006). Given the fact that in most villages grain

¹⁷ Buena, October 2006; Tiebelé, October 2007; Tensobentenga and Bougre-tenga, November 2007.

¹⁸ Interview with Lamine Coulibaly, AMADER, 26.11.08.

¹⁹ It should be noted, that according to interviews 22.12.08 and 04.04.09, with Yaya Sidibé, coordinator of the MFP programme in Mali, this rate is now estimated to have decreased to the range of 15–20%. According to Sidibé, the new estimates are based on a sample of about 100 platforms visited in 2008. Unfortunately, no written reports have been available, which could document the approach and the methodology. For the purpose of this article, it was decided to rely on the written sources available, namely the three reviews from 2006, which are based on visits to all installations at the time. According to the MFP review (2006, p. 8), only 470 platforms out of a total of 515 installations had started operation, and out of these only 333 platforms were in operation by the end of 2005. This makes a default rate of 29% based on the initial numbers in operation and 35% based on MFPs installed. In the review, it is not made explicit as to why so many platforms never went into operation, but as failures to start projects are most likely due to organisational problems, the overall failure rate of 35% is used for the purposes of this article. This is a conservative estimate compared to the two other sources, according to which the default rates are 38% (Goertz, 2006) and 40% (Crole-Rees et al., 2006).

¹⁶ Kasela, November 2008.

mills have existed for a long time on a private basis and without external support, the reported prevalence of socioeconomic conflicts in the MFP programme indicates that there were severe difficulties with the modality of intervention. Also, the fact that a greater share of the functional than the non-functional platforms had changed their organisational modality (43% vs. 17%) indicates that the collective mode of organisation may play a role here (Crole-Rees et al., 2006).

The reviews give further details of how the organisational modality had changed during operation compared to the initial set-up. For the MFPs in operation, 43% of the women's groups were no longer operating the platform, but were employing the services of a miller or had handed over the platform to a concessionaire. Most of this group (90%) were employing a miller to manage the platform, who was paid either according to the revenue of the platform or at a fixed monthly rate. In these cases the village group maintained its role as owner and manager. A smaller proportion (10%) of the group had handed over the platform to a concessionaire in such a way that the role of the women's groups was limited and that its management was in practice taken over by the notables in the village (Crole-Rees et al., 2006). The MFP review reveals that the women's groups were not renewed according to the rules, and that in general a smaller group than anticipated was active on the committee. In 63% of the groups a reduced number (1–6 persons) was active, and the important position of treasurer was only occupied in 47% of groups (MFP review, 2006). These details indicate that women's associations are facing difficulties in operating and managing the platforms.

One of the cornerstones of MFP programmes is that they should not only serve women's needs, but merely be owned, operated and managed by women. The reviews show that this objective has been difficult to achieve in practice, and that increasingly over time, men have 'almost systematically' played a role as supervisors, as committee members and employees (MFP review, 2006). For the 67% of MFPs who had maintained the women's group, it was usual, 'current', that the management committee was supported by a trusted man or 'homme de confiance' from the village, who took care of writing, buying diesel and negotiations with craftsmen for repairs. In only about 50% of the platforms were women responsible for day-to-day operation and management (Crole-Rees et al., 2006).

In sum, with respect to the practice of women's groups as owners and operators of the MFPs, this section has shown that a large number of installations are no longer in operation, mainly due to social conflicts, which seems to have their roots in the organisational modality. Men are almost systematically present in the women's groups, and in a considerable number of cases operation has been taken over by men. More seriously, there seem to be strong indications that the organisational modality may be threatening the long-term sustainability of the MFP intervention. This will be explored further in the next section.

7.2. Women's groups as operators and managers of small enterprises

The concept of collective ownership by women's groups is part of a wider development practice, where women's groups are initiated and supported to engage in micro-credit schemes and income-generating activities of various kinds such as vegetable gardening, soap production, shea-butter production, grain mills and dairies (Crewe and Harrison, 1998; Puget, 1999).

The author's research on village groups in Burkina Faso corroborated that villages are not homogeneous entities, but rather arenas for old conflicts and cleavages and that membership of the increasing numbers of village groups is often structured

along ethnic lines, family networks and factional affiliations in old conflicts. Competition between village groups for access to donor resources can therefore often reactivate and sustain old rivalries (Nygaard, 2006). These observations suggest that in cases where the MFP programme has encouraged villagers to form an association of existing village groups, this may create a level of tension in the management groups, which may prohibit activities, and that it may explain why village groups had ceased operations because they were not able to renew the management committee after their first mandate (MFP review, 2006).

The author's observations in the field in Burkina Faso also revealed that village groups generally engaged in activities initiated and financially supported by external development actors, but that the vast majority of these activities stopped as village group activities, when donors withdrew. A general pattern was that profitable activities, such as mills, vegetable gardening and storage and trading of cereals, continued on a private basis, while other less profitable activities such as sewing, broidery and improved cook stoves stopped when donors withdrew. The author's observations in the field lead to the conclusion that local villagers in the researched villages did not generally perceive of village groups as an institution, which was a suitable organisational framework for running small businesses, as it was the case in the cooperative movement in Denmark (Bjørn, 1977), but they rather saw village groups as institutions, which served as vehicles to get access to various indirect benefits from being related to the western world through the aid system (Nygaard, 2006, p. 151). That this may be understood as part of a more general phenomena is sustained by the fact that similar patterns of village group members, who engage in what they perceive as dubious activities in order to get access to other development rents, have been observed in research from other villages in Burkina (Puget, 1999; Laurent, 1998), in Mali (Floquet, 1994), in Senegal (Blundo, 1994) in Benin (Mongbo, 1994, and in Zimbabwe and Sri-Lanka (Crewe and Harrison, 1998).

It therefore remains an open question to which extent women's groups in Mali are committed to operating the platform as an income-generating activity as expected by the donors. It is obvious that the women's groups engage in the MFP activity motivated by getting access to a heavily subsidized grain mill, but the research findings mentioned above also suggest that they engage in the MFP activity in order to show engagement in a highly profiled activity that may lead to other donor supported projects or activities, such as e.g. micro-credit, cereal banks and literacy training. Observations from the field suggest that such motives may lead village groups to employ a strategy of dependency towards donors, rather than trying to create a self-sustained income-generating activity (Nygaard, 2006). This strategy, which is observed in much research on village groups (see e.g. Benoît, 2000; Floquet, 1994; Mongbo, 1994; Puget, 1999), is critical when operating technical implements, which need preventive maintenance, since the result may be the machinery breaking down and a fruitless wait for new donor assistance. This concern of village groups using a strategy of dependence in the MFP programme has been clearly expressed by Brew-Hammond and Crole-Rees (2004) and by Goertz (2006) and it may be a serious threat to the long-term functioning of the MFP.

Assuming this practice, and these strategies and logics observed by the author among village groups in Burkina Faso to be valid in a broader West African context of development aid, the choice of women's groups as the organisational modality would seem to play an important role on the high rate of non-functionality. This perception is shared by Bentaleb (2004), who claims that the mandatory management of projects by women might reduce their long-term sustainability, and by Goertz (2006), who points directly to the communal ownership model as the

main cause of socioeconomic problems, also suggesting that switching to a model of private ownership will eliminate many of these problems.

8. Ongoing programmes and recent changes

While the programme in Mali was the first, the largest and the most frequently cited, there are at present ongoing programmes in five countries in the region: Burkina Faso, Senegal, Ghana and Guinea, all at different stages in programme implementation.

The MFP programme in Mali had planned a second phase from 2006 to 2008, aiming at a total of 1500 platforms, but due to a lack of funding the programme was continued at a reduced level until 2008, when new funding was provided partly by the Ministry of Promotion of Employment and Professional Training and partly by the Bill and Melinda Gates Foundation.²⁰ Consequently in 2008 the Mali programme restructured its operation, and it is now aiming to have 1300 platforms installed before the end of 2011.³

By the end of 2007, the programme in Burkina Faso described above had implemented 120 platforms, and it is aiming to install 400 by 2009.²¹ By 2005 the MFP programme in Senegal had installed 56 platforms, and it has started a programme aiming at a total of 400 MFPs by 2010 and 1000 by 2015.⁴ In Ghana 40 platforms were expected to be installed by April 2008 (UNDP, 2007). In Guinea a pilot project installed 12 platforms between 2000 and 2005, and the project continued in 2007 with a target of 50 installations.²² Outside the region, in Tanzania, an NGO named TaTEDO recently received funding from the EU to establish 150 platforms before 2013.²³ Added to these are a number of minor offshoot programmes executed by various NGOs.²⁴

The ongoing programmes promoted by United Nations Development Programme (UNDP) have gradually changed focus from the provision of electricity and water to the provision of mechanized power, and from exclusive support to women's groups to support to private owners and operators. The focus on biofuels has also been downplayed. The change in scope from the provision of electricity and water towards the provision of mechanized power and agro-enterprise development can be seen in all ongoing programmes. For example, while, according to the national coordinator in Mali, the new Mali programme intends to cooperate with AMADER in providing electricity to smaller towns of between 500–1000 households, the programme does not at the moment include provision of electricity.³ This change is also reflected at the discursive level, where, instead of providing energy services (Burn and Coche, 2001), the MFP increasingly is referred to as providing 'mechanized power' (UNDP, 2008) or 'motive power' (ECOWAS, 2006).

With respect to the change to private ownership, the programme in Burkina Faso introduced a window for private ownership resulting in 10 out of 120 installed platforms being in private hands by the end of 2007.¹⁵ Under the condition that the MFP cannot be sold in the first five years, the private operators receive a 40% subsidy on the investment, while the platforms owned and operated by women's groups receive a subsidy of about 90%. In Burkina Faso there is little empirical evidence regarding the difference in performance of the privately owned

MFPs as compared with the MFPs owned by women's groups, but according to an interview with the technical manager of the MFP programme, the private operators tended to be more dynamic economically than the women's groups.¹⁵ This statement is supported by an internal review of the programme, which indicates that private investors invest more in complementary equipment than women's groups (PTFM, 2006). The pilot programme in Ghana, which started in 2005, has chosen an organisational modality according to which 65% of installations are privately owned and operated, i.e. 35% (14) are owned by women's groups, 35% (14) by individual women and 30% (12) by individual men (UNDP, 2007). Also, the programme in Mali is now investigating options for the private ownership of MFPs based on cooperation with a micro-financing institution.³

9. Conclusion

The main argument in the paper is that the integration of multiple technical functions, preconceived organisational set-ups and local fuel production has been essential in presenting the platform as a promising concept at the policy level, but that this integration of concerns seems to have had limited or even adverse effects on the outcome of the programme.

This paper has illustrated how the multipurpose goal of the platform has made concept a nexus of potential achievements that are highly valued in the dominant discourse in the international development arena, and how the focus on poverty alleviation, gender equity, environment, decentralisation and local democracy has included various donor interest areas outside the traditional energy sector. This suggests that this has been one of the main reasons for the continued attraction of donor funding. The multifunctional platform serves as a 'mobilizing metaphor', which can mean many things to many people, and which allows for a multiplication of criteria of success (Mosse, 2004, p. 650).

Internal reviews of programmes in Mali and Burkina Faso indicate that the high aspirations to be found in project descriptions are only partly reflected in activities on the ground. The practical multifunctionality that has been achieved is low, and aspirations to include electricity and water networks are far from having been fulfilled. The advantages of the multifunctionality have mainly been taken for granted by the project organisation, and critical assessments of the advantages of the multifunctionality compared to single-purpose implementations are not available. While the analysis presented in this article shows that the multifunctionality provides some options for efficiency; at the same time, as acknowledged by some existing entrepreneurs, it is increasing the vulnerability of the system.

The second innovative aspect of the concept, namely the inclusion of the main donor concern, has also proved difficult to implement at the level intended. The environmental aspect, mainly the option to use biofuel, was hardly integrated in practice due to its low level of profitability. More importantly, ownership by women's associations, which is a cornerstone of the concept, also proved difficult. This seems to be due to a more general phenomenon prevailing in development contexts that are characterized by high influxes of foreign aid, namely that village groups experience difficulties in running small businesses, as it was the case in the cooperative movement in the West (Nygaard, 2006). The ongoing MFP programmes have to some extent adapted to these realities on the ground by reducing the focus on electricity and water networks, downplaying the biofuel option and allowing private ownership for both men and women. This means that the original concept of the MFP, used for

²⁰ The funding of USD 19 Million from the Bill and Melinda Gates Foundation has allowed the projects in Burkina Faso, Mali and Senegal to be extended, with 200 platforms in each country: see <http://www.ptfm.net/spip.php?rubrique9>, (Accessed Marts 2009).

²¹ <http://www.ptfm.net/spip.php?rubrique9>, (Accessed Marts 2009).

²² <http://www.ptfm.net/spip.php?rubrique11>, (Accessed Marts 2009).

²³ Information from TaTEDO, Marts 2009.

²⁴ Examples are many, see, e.g., Sahel Defis in Burkina Faso, <http://saheldefis.free.fr/presentation.htm>, (Accessed Marts 2009).

mobilizing funding, has to some extent been abandoned and replaced by simpler technical and organisational solutions.

The paper thus provides indications that, in terms of achieving low-cost energy services in rural areas, single-purpose implementations and private ownership by both men and women might be a better option than the multipurpose implement owned and operated by women's groups. If this is the case, it is an interesting question what would have happened without any external intervention, or what could have been achieved by providing an enabling environment for enhancing the business opportunities of existing and new mill owners in rural areas, instead of introducing a new competing service based on cooperative ownership by women. An enabling environment could have many forms. One could be providing (subsidized) technical support and affordable financing schemes dedicated to new or existing local entrepreneurs to enhance their milling businesses with a de-husker or a welding facility or to engage in simplified grids for providing electricity.

In the struggle for donor resources in the international development arena, it is tempting to market concepts that are innovative and that meet the major donor concerns of the time in order to obtain the funding. However, the present analysis of the dilemma between mobilizing funding and implementing practical programmes provides an argument for building development aid on existing structures instead of inventing new complicated all-embracing concepts and approaches.

Acknowledgement

This article has benefitted from insightful comments from various researchers and practitioners, and in this regard I owe special thanks to Abeeku Brew-Hammond, Youba Sokona and Lawrence Agbemabiese for their contribution. I would also like to express my gratitude to comments from various colleagues, especially from Karen Holm Olsen and Gordon Mackenzie. Not least, I am grateful to Minoru Takada, who has presented the UNDP view on an earlier version of this article. The article draws heavily on insight gained through fieldwork for a PhD study in Burkina Faso financed by the Danish Council for Development Research.

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