

From the fuel *versus* food controversy to the institutional vacuum in biofuels West African policies

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Abstract

High international oil prices in the mid-2000s drew attention again to biofuels, which then began to be put on the political agendas of West African countries. Arguments advanced in their favor pointed to the potential to improve access of populations to ready, cheap energy and to promote economic development. Unsurprisingly, energy ministries stepped forward to establish biofuel policies, according little attention to the issues at stake for agricultural producers. Around the same time, increases in the price of food on the international market began to demonize biofuels, which then began to be perceived as a threat to the food security of populations in developing countries. In several countries dependent on outside technical and financial support, this shift in the international discourse influenced the position of agriculture ministries, which became lukewarm or even opposed to biofuels. Yet the question of rural development could have drawn the two sets of ministries closer together. The double talk at the international level damaged the coordination of public action to support the sector, generated an institutional vacuum, led to conflicts between stakeholders, and hampered the development of projects and sectors in West African countries.

Keywords: biofuels, policy, strategy, stakeholders, partnership, Sub-Saharan countries

Introduction

Since the mid-2000s, West African countries have sought to develop the production of biofuels (BFs) based on *Jatropha curcas* plants. This production responds to several challenges: energy self-sufficiency, income generation based on a new commercial crop, technological change, social advancement, rural development [4] [24]. Negative social and environmental effects of this production (taking the place of staple food crops, pressure on arable land and natural resources) have not been widely felt in this region. This is due to the recent drop in oil prices on international markets, which is undermining the viability of these projects, limiting the quantities produced, and

throwing doubt on the sustainability of the sector [1].

Ten years after *Jatropha* was first planted, a comparative analysis of BF development in West African countries reveals diverse national trajectories. What is most striking, however, is that the development of BFs in these countries has been hobbled by the absence of a clear and shared vision among stakeholders, in particular public actors, regarding the direction to give this sector. Although national BF strategies have been formulated, they are not creating an institutional environment conducive to the stable development of this production.

This article seeks to explain how clashing stakeholders' strategies, against a

backdrop of controversy over BFs, led to situations where coordinated public action is now absent, conflicts rage, and the development of BFs is blocked. It highlights the positions of different stakeholders and examines their interactions with the help of an analytic framework developed by the authors. The article is based on interviews conducted between the end of 2011 and the end of 2014 with sector stakeholders in four West African countries (Benin, Burkina Faso, Mali, Senegal) under the framework of a research program on the BF sector (doctoral research supervised by 2iE-CIRAD and supported by the European Union), and on a 2014 appraisal by CIRAD of bioenergy policies in West Africa (Iram – Hub Rural study).

The first part of the article examines the formulation of policies through the involvement of stakeholders, and uses the above mentioned framework to analyze the interplay of public and private actors. The second part focuses more closely on the question of political leadership and the causes and effects of the lack of coordination among public actors in West Africa, and then offers a contextualized analysis of the situation mainly in Burkina Faso.

1. Incomplete public policies and the interplay of stakeholders

The development of BFs in West Africa experienced a boom when oil prices rocketed upwards in 2007-2008. Since that time, several initiatives have been launched in West African countries by private promoters, who are accompanied and supervised to varying degrees by policies and strategies formulated for the development of the sector. An analysis

of the emergence of the sector and the development of public policy reveals diverse sets of stakeholders. First, we analyze the position and level of involvement of these stakeholders. We then look at the nature of the relationships between the main stakeholders in the sector in four countries. These countries were chosen due to the interest donors have taken in them, as well as to understand how countries which at one time shared a fairly similar vision (pro BF rhetoric particularly in Senegal, Benin and Mali) could follow such different BF development trajectories.

1.1. The involvement of stakeholders in building BF policies in four West African countries

The development of BF policies took place in a multi-stakeholder context (public, private, local, national, foreign, international...), with the involvement of these actors fluctuating during different stages of the policymaking process. We propose to use policy cycle stages [19] to analyze the interactions and level of involvement of stakeholders (Figure 1). While this sequential vision has its limits, as several stages may overlap or be superimposed one over another [23], this cycle seems appropriate means to analyze and understand how public policy is formulated. The analytic breakdown renders it possible to isolate key moments in the policy making process and to concentrate on the interactions between various stakeholders in each stage. We focus in particular on the first four stages: emergence and identification of a problem, agenda setting, policy formulation and adoption, implementation, evaluation, and policy implementation.

Figure 1: the stages of a public policy cycle



Emergence and identification of a problem

The high cost of energy resulting from dwindling oil resources was the main factor behind rekindled¹ global interest in BFs. BF production appeared to be an alternative solution to a societal problem of access to cheap energy. Against the backdrop of the oil crisis (with oil prices reaching US\$140 per barrel in June 2008), questions related to energy dependence, availability of fuel for consumers, and trade balances arose starkly in both the North and South. The high cost of oil motivated industrial countries to stimulate the production of biodiesel and bioethanol particularly for use in the transportation industry. Some developing countries saw BFs as an opportunity to both reduce energy dependence and boost their economic development.

Political agenda setting

In West Africa, the sector has been developed and policies formulated through two channels at different levels: at the national level via numerous direct private initiatives, and at the regional level under the impetus of public actors.

The first initiatives were made by foreign or national promoters in the countries concerned. To increase the supply of BFs and better respond to national European markets, Directive 2003/30/EC on the promotion of BFs encouraged European promoters (NGOs and multinationals) to launch several BF projects in Africa. These initiatives sought to cultivate *Jatropha* with the idea of exporting the seeds to Europe where they would be transformed into biodiesel.

In parallel to these private, mainly European initiatives (there also were Chinese and American bioethanol projects), public-sector actors in Europe (the European Commission through the European Development Fund, Dutch and German cooperation agencies) and Brazil influenced the initiatives of West African actors by funding pilot projects aiming to satisfy both international and domestic markets, research

programs, and meetings between decision makers (UEMOA²/ECOWAS³ Summit, and Brazil organized study trips to the country for UEMOA officials and representatives of farmers organizations).

These initiatives were largely put through at the regional level, with UEMOA playing a leading role in attracting funding and transferring ideas. It was the main interface used by foreign donors to fund regional and national BF projects and programs. The Regional Biomass-Energy Program (RBEP), launched in 2004 with Dutch funding (€2.5 million) and composed of two 3-year phases, is a reflection of the strong regional political will to promote biomass-energy. The program financed studies⁴ and expert assessments to develop national strategy documents, but did not have the resources to implement significant actions within the countries. With regard to Brazil, UEMOA sought to capture funding for the implementation of regional and national BF initiatives based on the Brazilian model of the sector by signing a memorandum of understanding with the country in 2007. This reflected the leading role Brazil wished to play in this field in West Africa. However, eight years later, few concrete actions have been implemented, and only a few feasibility studies have been launched with funding from the Brazilian Cooperation Agency (ABC) and the Brazilian Development Bank (BNDES).

Together, these initiatives influenced the manner by which the political agenda was set in each country. In Benin, the question emerged fairly rapidly under the impetus of the country's president following his visit to Brazil in 2007. The government then initiated and supported the establishment of a protocol of understanding between the two countries

¹ Industrialized countries previously were interested in BFs during the 2nd oil shock of 1979.

² West African Economic and Monetary Union, known by its French acronym, UEMOA (*Union économique et monétaire ouest-africaine*).

³ Economic Community of West African States.

⁴ For example: the regional feasibility study on setting up biomass brick factories and carbonized biomass charcoal as alternative fuel, the study of establishing a regional biomass energy data base, the study of the development of the "ethanol / gel fuel" sector for cooking fuel in the UEMOA area.

and the setting up of a committee to monitor the implementation of BF initiatives.

In Burkina Faso, the issue emerged gradually and took several forms under the influence of three key individuals: a technical adviser who influenced the Ministry of Energy, a research scientist who studied *Jatropha* during the 1980s, and a highly influential politician/traditional chief with extensive political and media contacts who promoted *Jatropha*-based BFs and invested in the sector on his own behalf (see below).

In Mali, the emergence process was similar to that of Burkina Faso with the involvement of a large number of actors: NGOs, multinationals, cooperation agencies (SNV and GTZ which launched a bioenergy project in the 1980s).

In Senegal, emergence was gradual and driven as in Benin by the country's president following the reciprocal visits of the Brazilian President to Senegal in 2005 and the Senegalese President to Brazil in 2007. These visits reinforced the determination of the government, which created a BF ministry in 2007.

Policy formulation and adoption

The emergence of BFs in the political sphere led to the production of a certain number of policy documents which involved public sector actors in different ways (Table 1). In Benin and Burkina Faso, only framework documents outlining the vision and strategy exist. Benin developed a "Strategy for the promotion of the biofuel sector" following a relatively long process begun in 2006 under the coordination of the Ministry of Energy which mobilized to a lesser degree the Ministry of Agriculture, the Ministry of Trade, the office of the President, the oil industry, and diverse consultants. This text was finally adopted by the government in 2011. In Burkina Faso, the strategy developed by the Ministry of Energy in 2009, named the "Framework document for biofuel promotion policy", has yet to be adopted by the government.

In Mali and Senegal, the political and regulatory framework is slightly more developed. In Mali, the "National Strategy for Biofuel Development" was adopted by the government in 2008 and the regulatory framework drafted in 2011 is pending

adoption. Both documents were drawn up under the coordination of the Ministry of Energy with contributions from other actors (see below). In Senegal, the biofuel law adopted by the government and National Assembly in 2010, and the regulatory framework drafted in 2012 still pending adoption, were both drawn up by the Ministry of Biofuels, which was established in 2006 under the impetus of the President of the Republic.

Implementation

The implementation of these BF policies has been limited due to the evolution of the international debate on BFs. Following sharp increases in agricultural product prices on the international market beginning in 2008, voices accusing BFs of affecting food prices (food riots), land grabbing, and ultimately food security in poor countries have become louder. Two opposing views of BFs have emerged, with supporters, who view BFs as a source of development based on better access to energy, pitted against critics, who point to the numerous risks posed by BFs for local populations.

This evolution of the international debate led numerous export projects to abandon or lower their objectives. Senegal changed its strategy, which initially was oriented around seed exports, to focus on producing for the national market. In Benin and Burkina Faso, all public initiatives to facilitate the structuring of the sector by defining an incentive-based regulatory framework appear to be frozen. In contrast, the policy implementation process in Mali was more effective due to the activities of the *Agence Nationale de Développement des Biocarburants* (ANADEB, the national biofuels development agency), created in 2009.

Nearly one decade after the emergence of BFs in these four countries, the BF sector, like elsewhere in Africa [21], is developing in an uncertain environment.⁵ Public initiatives

⁵ The same shortfalls have been noted elsewhere in Africa. Many failures in bioenergy development and hesitation on the part of investors in most East African countries were due to the absence of policies which were realistic (acknowledge the reality of agriculture in the country), stable and target long term and sustainable actions [22].

abound, but many policy documents are incomplete, or are waiting to be adopted or implemented. Programs are at times suspended, their goals unclear. There thus is a marked discrepancy between the stated goals (Table 1) and the resources actually employed. The regulatory framework in some countries is rarely complete and the different measures considered to be critical by stakeholders in the sector are on hold, leading to a true institutional vacuum. However, a regulatory framework to promote both the production and use of BFs (incentives, information to users, etc.) is desperately needed. This need is felt particularly strongly with regard to the choice of where to locate crops, land access and use, support for investment, setting up and monitoring product standards, price controls, etc. This institutional vacuum leads to ambiguity which penalizes the development of the BF sector in these countries.

In most of the countries studied, private stakeholders blame politicians for the absence of a regulatory, legislative and financial incentive framework supporting the development of BFs. Only Mali seems to have become engaged in the development of a real institutional framework, the establishment of regulatory and fiscal tools, and the implementation of a strategy document. The failure to develop a policy and institutional framework appears to be the main obstacle impeding the development of the sector.

In the absence of government support, the promotion of BFs relies on the activities of private operators and the partnerships which they are able to develop between each other, whether with private foreign firms (mainly Chinese and Italian) or with NGOs. The private sector has mobilized to develop BFs through numerous projects.

However, the countries did try to build public-private partnerships as a means to develop confidence between multiple stakeholders involved with BFs, overcome various challenges faced by the sector, develop collective responsibility, and share risks. While such a partnership appears to be operational in Mali under the impetus of ANADEB, it is not always easy to build in countries where political leaders are unsuccessful in generating private initiatives (for example, Senegal) or in countries where

private operators lack government support (for example, Burkina Faso).

1.2. Use of the “4C” approach to analyze the relationships between stakeholders

The level of involvement and the interactions of public and private stakeholders differ from country to country, and this influences the policy development and sector building processes in each. The following analysis enables the interactions between stakeholders in each country to be mapped out and compared. Partnerships between stakeholders appear to offer the advantage of conciliating the interests of most of the stakeholders involved. We seek to estimate the strength of the partnerships between stakeholders and examine how this may explain the institutional configuration in each country. To this end, we developed an analytic framework (the “4Cs”) which breaks down the interplay between stakeholders into four types of relationships: coordination, concertation, contractualization, and cooperation.

“Coordination” of public action

We identified coordination between public actors (central government, territorial authorities...) as the first important relationship between stakeholders.

Table 1: BF public policies in Benin, Burkina Faso, Mali, and Senegal

	Benin	Burkina Faso	Mali	Senegal
Energy and renewable energies policy	Policy and energy strategy 2003	No policy but a domestic energy strategy in 2005	National policy 2006	Energy policies 1997, 2003, 2008
BF policy and regulatory texts	BF policy 2008 BF orientation law 2011	Not established	Regulatory framework defined in 2011 Biodiesel, bioethanol and PPO standards defined in 2013	BF special project 2007-2012 BF law 2010 Regulatory framework drafted in 2012 not adopted
National strategy and goals	National strategy 2011	BF promotion policy framework document drafted in 2009 but not adopted	National BF development strategy in 2008	National export oriented strategy 2009
Objective/market targeted	Mainly export and national market	National market in priority	National market	Export and national market
Ambitions/stated objectives	Substitution rate at the national level to move from 1.25% in 2015, to 6.25% in 2020 and to 10% from 2025	Gradually substitute up to 30% of diesel used for transport by 2020	Substitution rate of diesel or DDO by JC oil: 2008 – 2013 : 10% 2014 – 2018 : 15% 2018 – 2023 : 20% 25 million liters of ethanol/year over the period	Quantified objectives for the period 2007-2012: (a) 1 190 million liters of oil (b) 1 134 million liters of oil or biodiesel (c) Plant 321 000 hectares of land, calculated as 1 000 ha per rural community
Private actors involved in 2014⁶	2	13	10	5

PPO: pure plant oil - JC: Jatropha Curcas – DDO: distilled diesel oil

⁶ See [10] for a detailed presentation of the various private actors involved.

The importance of this relationship was demonstrated by numerous authors [14] [15] [16] [25] and was defined as the preferred mode of action in the governance of the bioenergy sector in France. The coordination of public action is essential when a multisectoral issue like that of BFs is involved. It appears to be a prerequisite for the establishment of sustainable value chains responding to several sectoral interests.

The coordination of public action varied across the countries studied. In Mali, it was present from the very beginning and facilitated the definition of the national strategy in 2008 before ANADEB had even been established. In Senegal, it initially was formalized with the creation of a ministry in charge of BFs composed of officials drawn from other ministries. Since the BF department was placed under the Ministry of Energy and Renewable Energy Development in 2012, no visible joint ministry action has been taken. The situations in Benin and Burkina Faso also are characterized by weak coordination between public actors, notably between the actions of the Ministries of Energy and the Ministries of Agriculture. In each of these two countries, it is difficult to arbitrate between the Ministry of Energy's focus on energy access and the Ministry of Agriculture's concern for food security. In Benin, this situation led to a divisive debate between the two ministries over granting approval to a Chinese multinational seeking to produce bioethanol from cassava (see below).

The lack of coordination in the political sphere in each country aside from Mali, and the tension over the orientation to be given to the sector in the three other countries, is reducing the influence and capacity of public sector actors to build a policy, regulatory, and incentive framework. This situation thus hinders the construction of an institutional landscape conducive to the development of the sector.

"Concertation" between public and private partners

This is the second relationship to prioritize in each country. Several authors [7] [26] have shown that concertation is required to improve the management of agricultural

development. It can be developed through exchange platforms, agencies or units dedicated to BFs as long as these are operational. Such platforms were set up in all four countries with varying degrees of influence in each. In Benin, the *Commission nationale de promotion des biocarburants* (CNPB, the national commission for promoting BFs) was created in 2008; in Burkina Faso, the *Comité interministériel chargé de la coordination des activités de développement des filières biocarburants* (CICAFIB, an inter-ministerial committee responsible for the development of the BF sector) also was created in 2008; in Mali, the *Agence nationale de développement des biocarburants* (ANADEB, the national BF development agency) was set up in 2009, followed by the *Commission nationale biocarburant* (CNB, the national BF commission) in 2011; and finally in Senegal, the *Comité national des biocarburants* (CNB, a national BF committee) was created in 2010. However, these platforms for concerted action have barely functioned and have not yet managed to connect essential public and private partners, nor have they facilitated the exchanges required for the definition of a BF policy and the structuring of the sector. In Burkina Faso, the CICAFIB has only met five times. No activity has been developed by either CNPB in Benin or CNB in Senegal. Only ANADEB has been able to play an effective role by holding regular meetings between public and private actors and farmers. Depending on a given subject, ANADEB brings together government technical services, local authorities (named *Cercles*), project promoters of different sizes, producer organizations (notably CNOP⁷), the University of Bamako, research institutions such as IER, professional training schools, laboratories, and consumer associations. ANADEB is a forum for exchange where experience and expertise on BFs is gradually being forged. One example of its effectiveness is the publication of BF standards in 2013. ANADEB facilitated the structuring of the sector by establishing a multi-stakeholder and multi-sectoral partnership which renders it possible to conciliate the interests and visions of

⁷ A national confederation of farmer organizations.

different stakeholders in order to build a more integrated sector which responds to the needs of the majority of the actors involved.

“Contractualization” of relations between private actors in the sector

The coordination of activities between stakeholders operating at different points along a value chain also seems important to consider. Several authors [13] [17] [18] [26] [20] have shown the benefits of contractualization as a means to vertically coordinate actors in the agriculture sector and as a component of efficiency in market development. With regard to supplying the BF sector, [2] [12] have highlighted the contractualization of relations between farmers and project promoters as a prerequisite to ensuring the sustainability of supply while preserving family agriculture [12]. Contractualization mainly was established in the countries studied by the promoters of projects involving the industrial production of oil or biodiesel using *Jatropha*, which requires vast quantities of seeds for the processing units to function. To ensure supplies, project promoters established *Jatropha* seed purchase contracts with farmer organizations. In contrast, the strategy followed by promoters of bioethanol production projects, notably in Benin and Senegal, was to produce sugar cane themselves on their own fields.

“Cooperation” between foreign actors and national public and private actors

This is the fourth important relationship that we identified. Bilateral and multilateral cooperation allows investments to be channeled towards the development of the sector [6] [8]. Cooperation can take several forms, such as carbon finance activities or rural development support.

In terms of multinational cooperation, the *Jatropha* programs initiated by UNDP in Burkina Faso and Mali promote the use of vegetable oil in a network of multifunctional platforms.⁸ The World Bank, through its

⁸ A multifunctional platform is equipped with a diesel engine able to power different machinery, for example, a mill to grind grains, a husker, or a battery charger. The engine also can generate electricity for lighting and refrigeration and to pump water.

Program For Scaling Up Renewable Energy in Mali, which was launched in 2010 and includes a biomass component, funds initiatives related to decentralized rural electrification (DRE), environmental protection, and the mitigation of greenhouse gas emissions. The European Union (EU) first funded pilot production projects in Senegal, Mali, and Burkina Faso through the RBEP (see above), then the 2iE/EIFER/CIRAD “*Valorisation énergétique de la biomasse en Afrique de l’Ouest*” (Development of biomass energy in West Africa) research program.

Bilateral cooperation has taken place at various levels and in different forms. The Brazilian strategy consisted of channeling funds through the Brazilian Cooperation Agency (ABC) and the Brazilian Development Bank (BNDES) for many studies and assessments of the feasibility of BF sectors in numerous UEMOA countries (see above). Cooperation also can take the form of technology transfers such as Taiwan’s funding of *Jatropha* seed crushing and processing equipment for three promoters⁹ in Burkina Faso in 2012 (through the International Cooperation and Development Fund). Another means of action was to facilitate the installation of multinationals in these countries through public cooperation agencies which negotiate with national authorities. This was the case in Benin, where the Chinese state enterprise *Complant* (China National Complete Plant Import & Export Corporation) acquired the sugar company Savé and supported the installation of the multinational company, Zheng Da Investments Limited, which hopes to obtain land to produce cassava-based bioethanol. Cooperation agencies also can become involved by directly providing loans to finance the industrial investment plans of private actors. This was the case, for example, of the French Development Agency (AFD), which awarded a loan to an industrial actor in Mali (*Jatropha* Mali initiative) in 2011. The German (GIZ) and Dutch (SNV) cooperation agencies also contributed to developing the sector by funding local efforts to produce oil

⁹ Two industrial biodiesel production units using JC oil were given to BelwetBiocarburant and FasoBiocarburant SA and an oilseed press for the production of PPO to Aprojer.

for socio-economic activities and decentralized rural electrification (DRE) units. We should note that the German cooperation agency was the first to fund renewable energy and BF (PPO) development projects in Mali and Burkina Faso in the 1970s and 80s.

While it may seem simplistic to present complex institutional situations using the “4Cs” framework, the tool allows an examination of the four types of relationships which we believe to be decisive in setting up sustainable sectors.

2. Leadership and coordination of public action in the West African biofuel sector

The coordination of public actions is indispensable for public policy processes and national governance [14]. It furthermore conditions other forms of relationships because coordinated state action provides governments with the means to incite and involve other actors [19]. In terms of the multisectoral specificity of BFs, coordination is particularly critical when several government ministries are arguing over which one should assume leadership on the issue. To better understand the issues at stake in the coordination of public action, in the next two sub-sections we analyze the plays for influence and jostling for leadership on the BFs question between energy and agriculture ministries. We then look at the special features of the Burkina Faso case to probe more deeply into the causes and consequences of the power games between these two players. We find that the evolution of the international debate on BFs had an important influence on the positions taken by actors, the emergence of divisive situations, and the malfunctioning of the sector.

2.1. The domination of energy ministries on the multisectoral biofuel question

In the public decision making ring, each ministry seeks to promote its own sectoral interests within power struggles for leadership. The outcome of the confrontation of various ministries’ views and discourses

helps build a sector’s policy and institutional framework and influences the orientations and choices of different stakeholders in the sector.

In the four countries studied, one can see that the ministries in charge of energy are imposing their views of the development of the sector to the detriment of the views of the ministries of agriculture, which represent the interests of agricultural producers. Indeed, the BF policies which have been implemented unanimously focus on improving the access of populations (in particular rural) to energy in order to drive development, in contrast with the objectives governing these policies elsewhere in the world.¹⁰ The political arguments which prevailed did not focus on stimulating a production or an agricultural sector by ensuring an outlet, but rather on developing energy services by supplying the necessary raw materials. The approach based on a finished product (PPO, bioethanol or diesel) for rural energy services enabled energy ministries to position themselves as leaders on the question and to impose their views within their governments with a somewhat muted involvement of other ministries, notably agriculture.

With the exception of Mali, where the Ministry of Agriculture has played a major decision making role through its decentralized structures (notably the choice of *Jatropha* based on information provided by agricultural research and the choice of short marketing chains), the agriculture ministries in Benin, Burkina Faso and Senegal have assumed much lower profiles. In Benin, the Ministry of Agriculture showed little interest in promoting BFs during the development of the BF promotion strategy, and dedicated little resources to it: for example, BF plants are not listed among the thirteen priority areas in the strategic plan for the revival of the agricultural sector (PSRSA) developed by the ministry in 2011. In contrast, in Senegal the *Jatropha* and sugar cane sectors were defined as such promising sectors in the Agro-Sylvo-Pastoral Act (LOASP) of June 2004 that a special *Jatropha* program was begun by the

¹⁰ In contrast, it has been well demonstrated in France and Europe for oilseeds, and in Brazil for sugar cane, two countries/continents where BFs have been developed, that this energy outlet saved agricultural sectors which had been struggling to remain profitable.

Ministry of Agriculture. However, today the Ministry of Energy is in control of the BF sector. In Burkina Faso, the weak to non-existent involvement of the Ministry of Agriculture has been a major obstacle impeding the development of the sector (see below).

Public actions and measures usually were implemented by the energy ministries and primarily concerned technical and economic innovations without considering social or agricultural objectives [11]. In the four countries, the energy ministries were the ones steering the development of policy and strategy documents on the promotion of BFs. Furthermore, the fact that the various national BF agencies and committees are under the energy ministries does not facilitate public coordination (see above). While these concertation structures include representatives of several ministries (often the ministries of agriculture, the environment, industry, research, and the economy), these other ministries play much less active roles in the implementation of BF policies and strategies. Without real operational autonomy (with the exception of ANADEB in Mali), these structures are barely functional and are unable to establish a framework of concerted action between the different ministries involved. Policies and strategies demonstrate a clear intention to involve a large number of public bodies, but their roles are not well defined, which renders policy implementation difficult.

2.2. *From weak public coordination to the emergence of conflicts*

Within the public decision making sphere, without effective upstream coordination of public action, conflicts can emerge and block the development of the sector, in particular when the BF agencies or committees are unable to ensure concertation between various sector stakeholders.

In Benin, the conflict between the Ministry of Energy on one side, and the Ministry of Agriculture in coalition with farmer organizations on the other, blocked communications between the two ministries. The disagreement began over the use of cassava as raw material for bioethanol

production. In Senegal, a conflict involving a land acquisition also erupted at the local level following a misunderstanding between an Italian multinational located in the Fanaye region and farmer organizations allied with the Ministry of Agriculture. This conflict was highly publicized and led to a freeze of this multinational's activities following government intervention to defuse tension in the region at the time. Some actors remain on guard.

The case of Burkina Faso illustrates several types of conflicts. The Ministry of Agriculture remained quite remote from the development process of the sector. According to public administration theory [20], this situation could be understood as an expression of a conflict of views and interests, and of competition between actors.

The weak coordination of public action reflects a conflict of views and interests between the two ministries which has not been resolved. The Ministry of Energy is focused on energy issues (access to energy, reduction in the cost of hydrocarbon imports). Meanwhile, the Ministry of Agriculture, which oversees agricultural and rural development, is concerned about the food security of family farmers and land risks, echoing the international discourse [3].

Another facet of this weak coordination of public action is a personal conflict between a former Minister of Agriculture and a political go-between, Larlé Naaba. This key player in the sector is widely known due to his title of traditional chief. He is furthermore a deputy in the National Assembly and an economic operator. In 2006, he began a joint venture BF production project named "BelwetBiocarburant S.A.". Due to his notoriety, his activities to promote Jatropha farming received considerable media attention, to the point that he became known as "Mr. Jatropha" in Burkina Faso. Following a visit to Larlé Naaba's home provinces, and on the occasion of a national day to promote Jatropha organized by Larlé Naaba in 2008, the then Minister of Agriculture entered into direct conflict with the traditional chief and publically stated his personal opposition to the promotion of Jatropha, which in his view would threaten food security. Larlé Naaba then used his political network to meet with highly placed government officials to obtain

their support and assurances, and to continue his *Jatropha* production project. In December 2008, he could claim to have received a letter of encouragement from the President of the Republic. His prominent position enabled him to escort numerous national and foreign figures on visits to his experimental field and to obtain bank credit to finance his project and, more importantly, support and promote *Jatropha* farming in rural areas (seed donations, awareness raising campaigns, local and national media coverage). The minister criticized the traditional chief for using his prominent, highly publicized, and influential position, for relying on arguments mainly based on energy independence, and the quasi unilateral development of BFs by the Ministry of Energy. Meanwhile, the traditional chief reproached the minister for his “authoritarian” and personal management of the issue and the minimal involvement of his ministry. This situation contributed to blocking the BF dossier at the level of the Ministry of Agriculture, and explains in part the ministry’s limited involvement in the building of the policy and regulatory framework for the sector. The minister’s political weight (he was minister several times) explains his capacity to block the dossier from advancing on the government’s agenda. A lack of conclusive scientific research on the effects of BFs on food security, and above all the controversy over the impacts of BFs which emerged in 2005, reinforced his position and that of his ministry.¹¹ However, since being out of office, the former minister and current deputy has confided that, with the benefit of hindsight, he is personally in favor of *Jatropha* farming, but only on arid land, and of the promotion of industrial value chains, which are the only ones he believes are likely to have a satisfactory impact on macro-economic indicators. Nonetheless, the current Minister of Agriculture has stated a clear intention to ensure food security and does not appear to have changed the ministry’s position.

¹¹ Despite some scientific research findings pointing to a positive impact on food crop yields when food crops are cultivated in association with BF crops: studies and masters thesis supervised by Makido Ouédraogo.

Conclusion

The emergence of BFs in the countries studied assumed various forms under the guiding vision of different actors and against a backdrop of interplay between stakeholders. No public BF policy, meaning an ensemble of coordinated actions implemented with the objective of obtaining a change in, or an evolution of, a given situation, exists today. This is what we have called a political vacuum. The development of BFs in Benin, Burkina Faso, and Senegal suffers in particular from the absence of a clear vision shared by all stakeholders and the lack of coordination between public actors. BF strategies were not created through a participatory process and have not led to an institutional environment that is both favorable to the sustainable development of the BF sector and respectful of the interests of family farmers, who form the majority in West African countries.

Our analysis of the relationships between stakeholders using the “4C” framework presents complex relationships and varying degrees of stakeholder involvement depending on the country in question. While concerted action has overall been very limited, it is taking place in Mali with an integrated process associating numerous sector stakeholders. However, one hesitates to speak of a success story in this country when numerous challenges still need to be addressed (plant agronomy, competitiveness and organization of value chains, replacement of traditional fuels by BFs, etc.) before production can reach the level needed for BFs to assume a significant role in the national energy supply. In the other three countries, the national agencies and committees responsible for setting up frameworks for concerted action involving multiple actors to develop BF policies and the structuring of the sector have functioned poorly. An institutional vacuum has taken hold which prevents investments in and the sustainable development of the BF sector.

Although public coordination appears to be a key step in the development of the sector, the governments in these countries mainly worked through the ministries in charge of energy, which have become the

leaders on the BF question. Other ministries, such as those of agriculture, or, to a lesser degree, the environment, economy and finance, trade and industry, have exercised little influence over the orientation and implementation of policies and strategies. National BF policies are thus primarily focused on the energy potential of BFs and on technical and economic dimensions of processing *Jatropha* seeds into oil and biodiesel rather than on upstream and downstream social objectives. In Burkina Faso, controversy over food security risks and

References

- [1] Audouin S., Chapuis A., Derra S., Gatete Djerma C., Dabat M.H., Gazull L. 2013. Un cadre d'analyse pour évaluer les filières de production de biocarburants à base d'huiles végétales en Afrique de l'Ouest, 4ème Conférence internationale sur les Biocarburants en Afrique du 21 au 23 Novembre 2013 à Ouagadougou : *Quel bilan et quelles voies d'avenir pour les biocarburants et les bioénergies en Afrique?* In Blin Joël (ed.), Mouras S. (ed.), Wadre A. (ed.), Voron A. (ed.), Ed. Sud Sciences et Technologies, Ouagadougou, Actes de la conférence, p. 2-15.
- [2] Bamière L., Gouel C., Martinet V., 2010. Etude de La viabilité de L'approvisionnement en biomasse-énergie d'unités de transformation, In. Paris, France: INRA.
- [3] Dabat M.H., Blin J., 2011. Food or biofuels-must we choose? The example of Burkina Faso, *Perspective*, CIRAD, Montpellier, 4 p.
- [4] Dabat M.H., Blin J., Hanff E. 2012. Are biofuels a factor of sustainable development in a food insecurity context in Africa? Case study of Burkina Faso, In: Olla Phillip. *Global sustainable development and renewable energy systems*. Hershey: Information Science Reference, p. 152-171.
- [5] Dabat M.H., Gautier D., Gazull L., Pinta F. 2015. Energy challenges: threats or opportunities? In : Sourisseau J.-M. (ed.), *Family farming and the Worlds to come*, Quae-CIRAD-Springer [Pays-Bas], p. 181-198.
- [6] Dabat M.-H., 2011. Les nouveaux investissements dans les agrocarburants, *Afrique Contemporaine* n° 237 (1): 97-109.
- [7] Duteurtre G., 2004. Normes exogènes et traditions locales: la problématique de la personal tensions and differences influenced the position of some key players, blocking all possibility of public coordination and the establishment of a favorable environment for the sector. Yet the question of the role of energy in rural development [5] [9] could have been the focus of coordinated, multisectoral public action.
- Moving beyond this institutional approach, it is also evident that the sustainability of BFs in West African countries is heavily subject to variations in the price of oil.
- qualité dans les filières laitières africaines, *Cahiers Agricultures* 13 (1): 91-98.
- [8] Gabas J.-J., Goulet F., 2013. Les coopérations agricoles chinoises et brésiliennes En Afrique, *Afrique Contemporaine* 3: 111-31.
- [9] Gatete Djerma C., 2013. Le sous-secteur de l'électrification rurale décentralisée (ERD) au Burkina Faso : cadre politique, approche, contraintes et analyse comparative de quatre projets, *Liaison Énergie-Francophonie*, Numéro 94, p. 48-53.
- [10] Gatete C., Dabat M.-H., 2014. Développement des biocarburants en Afrique de l'Ouest. Une analyse institutionnelle comparative, *Economie Rurale* 344: 9-28.
- [11] Hanff E., Dabat M.H., Blin J. 2011. Are biofuels an efficient technology for generating sustainable development in oil-dependent African nations? A macroeconomic assessment of the opportunities and impacts in Burkina Faso. *Renewable and Sustainable Energy Reviews*, 15 (5) : 2199-2209
- [12] Hanff E., Dabat M.H., Blin J. 2011. Are biofuels an efficient technology for generating sustainable development in oil-dependent African nations? A macroeconomic assessment of the opportunities and impacts in Burkina Faso. *Renewable and Sustainable Energy Reviews*, 15 (5) : 2199-2209.
- [13] Hermelin, B., Lagandré D., 2009. Les agrocarburants: menaces ou opportunités pour les agricultures familiales? *Ecologie & Politique* 1: 69-77.
- [14] Kroll, J.C., 2007. Agriculture, fournisseurs, filières, In *Une politique mondiale pour nourrir le monde*, Pisani E., Lebiez M. (Réd.), 33-47. Paris, France: Springer.

- [15] Lascoumes P., Le Galès P., 2012. *Sociologie de l'action publique: domaines et approches*. 2e ed. Paris, France: Armand Colin.
- [16] Leloup, F., L. Moyart, Pecqueur B., 2005. La gouvernance territoriale comme nouveau mode de coordination territoriale? *Géographie, Économie, Société* 7 (4): 321-32.
- [17] Litvine D., Gazull L., Dabat M.H. 2014. Assessing the potential demand for biofuel by combining Economics and Psychology: A focus on proximity applied to Jatropha oil in Africa. *Ecological economics*, 100: 85-95.
- [18] Moustier P., Vagneron I., Thai B.T., 2004. Organisation et efficience des marchés de légumes approvisionnant Hanoi (Vietnam), *Cahiers Agricultures* 13 (1): 142-47.
- [19] Muller P., 2003. *Les politiques publiques*, Que sais-je? PUF
- [20] Pollitt C., 2003. *The Essential Public Manager*. Buckingham and Philadelphia: Open University Press/McGraw Hill.
- [21] Poppe M., Nogueira L.H.. 2009. Le bioéthanol: de l'expérience brésilienne à la formation d'un marché global, *Revue de l'Énergie* 591: 1-10.
- [22] Janssen R., Rutz D., Khawaja C., 2013. Policies for sustainable biomass in Southeast Africa, 4ème Conférence internationale sur les Biocarburants en Afrique du 21 au 23 Novembre 2013 à Ouagadougou : *Quel bilan et quelles voies d'avenir pour les biocarburants et les bioénergies en Afrique?* In Blin Joël (ed.), Mouras S. (ed.), Wadre A. (ed.), Voron A. (ed.), Ed. Sud Sciences et Technologies, Ouagadougou, Actes de la conférence, p. 154-163.
- [23] Sabatier, Paul A. 1998. "Advocacy Coalition Framework: Revisions and Relevance for Europe." *Journal of European Public Policy* 5 (1): 98-130.
- [24] Tatsidjodoung P., Dabat M.H., Blin J., 2012. Insights into biofuel development in Burkina Faso: Potential and strategies for sustainable energy policies. *Renewable and Sustainable Energy Reviews*, 16 (7): 5319-5330.
- [25] Tritz Y., 2012. Le système énergétique agri-territorial: les bioénergies comme outil de développement local, *Géographie, Économie, Société* 14 (1): 31-52.
- [26] Vergriette B., 2002. Contrats et concertation entre acteurs des filières vivrières, In Synthèse des Rencontres de Mbalmayo, 80. Yaoundé 7 au 11 juillet, Cameroun: Inter-Réseaux Développement rural.