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## FOOD SCIENCE & TECHNOLOGY | RESEARCH ARTICLE

# Innovation platform and governance of local rice value chains in Benin: Between game of power and internal democracy?

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**Abstract:** In Benin, rice plays a major role in the food security of the poorest rural and urban populations. However, the rice value chains have failed to achieve their potential because of some systemic constraints. In recent years, innovation platforms (IPs) have received increasing focus as mechanisms for strengthening the interaction between the stakeholders in the rice value chains. Nevertheless, the issues of information asymmetry and power between stakeholders with often divergent interests suppress the expected effects of the implementation of IP approach. This article used thematic content analysis to assess the influence of IPs on the governance of the parboiled rice value chain. The findings reveal that local rice value chains are characterized by unequal access to resources and asymmetry of power, which generates inequalities within groups. Although their influence is less discernible, IPs have contributed to greater visibility for some emerging stakeholders and rebalanced stakeholders in terms of influence in value chains. Moreover, the perverse effects of financial and human resources management limit the impact of improvement actions in various value chains. Therefore, the development model of value chains may be oriented toward the “business idea approach” instead of the “project approach”.

### ABOUT THE AUTHORS

I am Léonard Cossi Hinnou, rural sociologist employed by the National Institute of Agricultural Research of Benin (INRAB). I have 17 years of work experience in agricultural research with INRAB in Benin. As a researcher, I am in charge of Innovations Transfer since 2015 in the Agricultural Policy Analysis Program (PAPA). Moreover, since my capacity building in Agricultural Research for Development (AR4D) and rural innovations (2011) organized by the International Centre for development oriented Research in Agriculture (ICRA) in Wageningen, Netherlands, I have been involved in several research-action field works in Benin, Mali, Burkina-Faso and Cote d'Ivoire which are financed by the World Bank, FAO, UNDP, AfDB, etc... Moreover, I am one of the ICRA focal points in Benin and trainer in the 2SCALE and WAAPP project (2015–2017). These experiences integrate most appropriate approaches in innovations design, transfer and evaluation to improve the adoption of agricultural innovations. I am author and co-author of about 10 scientific papers published in peer reviewed journals.

### PUBLIC INTEREST STATEMENT

For several years, there has been an unequal access by rice producers and parboilers to information and resources useful for the development and the promotion of local parboiled rice value chains. These resources are controlled by a minority, thus generate inequalities within groups. To reduce this disparity, rice innovation platforms (IPs) have been set up to bring together and reinforce relations between the various stakeholders. This aims at facilitating access to production factors and reduction of uncertainties related to the market. On the other hand, the IPs have helped to rebalance the power of the stakeholders by making some actors like women rice parboilers more visible. However, current results are not yet sufficient to make this category of stakeholders completely independent in terms of decision-making and governance. To establish equity and concerted governance within local rice value chains, actions should be oriented towards the “business” approach to the detriment of the “project” approach.

**Subjects: Agriculture and Food; Sociology; Development - Soc Sci; Organizational Communication; Rural Development**

**Keywords: innovation platforms; governance; value chain; power; local rice**

## 1. Introduction

In Benin, the issue of food and nutrition security is a concern because of the existence of pockets of severe food insecurity among poor people, including smallholder's farmers (23% of households) in rural areas (Programme Alimentaire Mondial [PAM], 2014). The government of Benin identified rice as one of the priority and strategic crops that could contribute to increasing agricultural incomes (Ministère de l'Agriculture, de l'Élevage et des Pêches [MAEP], 2011). However, rice value chains have failed to reach their potential because of systemic constraints. These elements define the structure of governance of a value chain, which should be analysed taking into account the relationships at every level of this chain (Johnston & Meyer, 2007) based on trust, transparency and mutual benefit (Demont & Neven, 2013; Mwesige, 2010; Schiffer, Hartwich, & Monge, 2010).

The dynamics between value chain actors makes it necessary to consider power relations in the market and identify activities to balance the playing field between the more powerful actors and the rural poor (Thiele et al., 2011). Small scale farmers struggle to access markets due to their low capacity to mobilize resources and their limited power (Thiele et al., 2011). In this context, investment on professional organizations appears to be important in order to facilitate equitable access of rural producers, especially the poorest, to agricultural markets. In this case, producer's groups can become strong enough to negotiate the reduction of transaction costs and generate substantial savings for their members (Adekunle et al., 2012; Thiele et al., 2011). It is in this perspective that the "Innovation Platform (IP)" approach was used as part of the SARD-SC (Support to Agricultural Research for the Development of Strategic Crops in Africa) project to strengthen the capacity of various stakeholders and thus promote local rice value chains (Sanyang, Taonda, Kuiseu, Coulibaly, & Konaté, 2015).

IPs are seen as mechanisms to strengthen the interaction between the actors in the value chain (Dror, Cadilhon, Schut, Misiko, & Maheshwari, 2016; Mur & Gildemacher, 2012; Swaans et al., 2014; Wennink & Ochola, 2011). Through this local institution, all stakeholders should be aware of the need to organize and implement a common agenda (Tui et al., 2013). Nonetheless, the issues of asymmetry of information and power between stakeholders with often divergent interests come to mitigate the expected effects of the implementation of the innovation platform approach (Brouwer, Hiemstra, Vugt, & Walters, 2013; Cullen, Tucker, Snyder, Lema, & Duncan, 2014; Cullen, Tucker, & Tui, 2013). Considerable facilitation skills are required to manage farmers' organizations and innovation platforms with efficiency and transparency and create a climate of confidence in which the partner institutions can invest (Cadilhon, 2013a; Kilelu, Klerkx, Leeuwis, & Hall, 2011).

Although several recent studies on the issue of IPs have addressed their structure and functioning (Adekunle, Fatunbi, & Jones, 2010; Brouwer & Woodhill, 2016; Francis, Mytelka, van Huis, & Röling, 2016; Glin, Fatunbi, Kouévi, & Togbé, 2016), there is still a lack of information on how these platforms contribute to development outcomes (Kilelu, Klerkx, & Leeuwis, 2013). While IPs enable collaboration and interaction between the stakeholders in order to design new processes, it is very difficult to measure their impact because the achievements are often influenced by factors of the environment in which these platforms emerged or are initiated (Gildemacher, Oruku, & Kamau-Mbuthia, 2011). Recent studies have attempted to develop frameworks for measuring the impact of IPs (Adane-Mariam, Cadilhon, & Werthmann, 2015; Cadilhon, 2013b; Pham, Cadilhon, & Maass, 2015; Sartas, Schut, & Leeuwis, 2017). However, the influence of IPs in promoting equity within the value chains of agricultural products is not well known. Does the existence of an IP promote equitable and sustainable control of the power structure throughout the value chain of rice, especially at local level? That is the question to which this article intends to answer by analysing the governance of the value chain of parboiled rice in terms of power relations and information asymmetry induced by IPs in Glazoué rice hub in Benin.

## 2. Key concepts

The innovation platform (IP) is a space for learning and change. It is a group of individuals (who often represent organizations) with different backgrounds and interests: farmers, traders, food processors, researchers, government officials, etc. The members come together to diagnose problems, identify opportunities and find ways to achieve their goals concerning the value chain promotion (Kilelu et al., 2013; Tui et al., 2013). In this context, any value chain approach requires the identification of all relevant stakeholders at all levels of the chain, followed by a systematic analysis to identify opportunities and threats to ensure an equitable distribution of all, especially producers (Adekunle et al., 2012). Thus, value chains in conjunction with urban and agro-industrial markets offer new opportunities and strengthening rural purchasing power (Mwesige, 2010).

Governance remains a core concept in the value chain. It is opposed to the classical traditional approach, which is uncoordinated and less oriented towards the stakeholders' constraints (Soulie, 2013). Moreover, governance of value chains integrates the different strategies of stakeholders in terms of access to factors of production and market and the inclusion (equity) of poorest stakeholders (Reardon, Chen, Minten, & Adriano, 2012). Similarly, Moustier (2012, p. 45) defines the governance of value chains as a system that regulates the division of labour and responsibilities among the actors in the value chain. Governance refers to the mechanisms by which an actor of a value chain determines the parameters within which other actors will operate; how these parameters are communicated and controlled, and allowed coordination of activities (Gereffi & Korzeniewicz, 1994; Schiffer et al., 2010; Soulie, 2013). Governance is therefore considered as the non-market coordination of economic activity (Gereffi, Humphrey, Kaplinsky, & Sturgeon, 2001). Thus, this governance implies the ability of a stakeholder in the chain to influence or determine the activities of other stakeholders in the chain. This influence can extend to the definition of products, processes and quality standards that suppliers are required to follow. Indeed, a governance structure is defined as relations of authority and power that determine how financial, material and human resources are distributed and circulate within the chain (Gereffi & Korzeniewicz, 1994). In other words, the governance of the value chain is determined by the degree of explicit coordination and power asymmetry between the stakeholders, mainly raw materials suppliers and buyers (Gereffi, Humphrey, & Sturgeon, 2005). In doing so, governance responds to pluralistic principles such as democracy, legitimacy, participation, equity, transparency, unity in diversity (Schiffer et al., 2010). In this article, governance is considered as the ability of an actor to determine or control the actions of other actors in the value chain.

## 3. Theoretical background

Governance encompasses a wide range of institutions and relationships beyond government and is considered as essential in realizing agricultural development outcomes (Kaufmann, Kraay, & Mastruzzi, 2009; World Bank, 2007). Therefore, governance appears to be an important feature of agricultural value chains. Indeed, the "inter-organizational networks linking households, firms and states in the global economy" can be analysed from a sociological view through four complementary prisms: (i) the structure of input-output; (ii) dispersion and spatial concentration of activities; (iii) the socio-institutional context and (iv) power relations and coordination methods (Temple, Lançon, Palpacuer, & Paché, 2011). Thus, in our study, the theory of governance of value chains is part of a sociological dimension of development with a systemic perspective. The study applies new institutional economics perspectives which reject the neoclassical theory's founding assumptions about the limited rationality of agents. Furthermore, analysis of the governance of the "Global Value Chain" focuses on a technical approach to coordination (Gereffi et al., 2005), inspired by the theory of transaction costs (Coase, 1937; Temple et al., 2011). The theory of transaction costs distinguishes a continuum of three major forms of governance structure: the market place, hybrid trade (bilateral contracts, networks and alliances) and vertical integration or hierarchical governance structure (Arlinloyé, 2013; Williamson, 1979). While recognizing the importance of transaction costs, the approach of Gereffi et al. (2005) rejects the theory that production systems, complex and closely coordinated, always result in vertical integration. In other words, the systems of production and marketing are not working in a perfect standardization context. In contrary, network actors seize

opportunities through repeated transactions as well as social norms that are incorporated into social groups (Gereffi et al., 2001).

On the premise that developing countries' producers strive to meet needs that often are not satisfied in their domestic markets, Gereffi et al. (2005) argue that there is a gap between the capabilities required for the domestic market and those required for the external market, raising the level of supervision and control by the buyers in the value chains. This design allowed Gereffi et al. (2005) to identify five types of governance namely (a) the trade chain (relations between actors have a very short duration and are based primarily on prices and quantities of products traded); (b) the modular chain (suppliers are able to internalize some tacit information as requirements of the buyers, which then influence partly the production); (c) relational chain (suppliers and buyers are mutually dependent because of the complexity of the interaction); (d) captive chain (ability to codify the information is high) and; (e) hierarchical chain (several links in the sector are integrated into a single level where information flows easily).

However, explanatory criteria of the structure of the value chain are difficult to measure and does not take into account the geographical dimensions or on economic length in terms of number of intermediate chains (Soulier, 2013). The contribution of Moustier (2009) was to take into account those variables through the fact that the product is suitable or not to the buyer and the actors have or have not the ability to change partner (customer or supplier). Furthermore, the multi-stakeholder integration at different levels of the value chain with strategic nesting seems not to be well covered by Gereffi et al. (2005). Indeed, organization at the local level makes it possible to manage some constraints at the production and processing stages, as well as those related to marketing of products. In doing so, new value chain upgrading strategies are developed through IPs.

In doing so, new strategies of value chains promotion are developed through IPs to strengthen the existing organizational structure. Indeed, IPs are seen as a means of bringing together stakeholders of the value chain for collective action and change (Sanyang et al., 2015; Schut et al., 2015) in order to reduce disparities observed in access to resources (Jarial, Ajeigbe, Yahaya, Issa, & Nouri, 2015; Laven & Pyburn, 2015; Nederlof, Wongtschowski, & Van Der Lee, 2011). In other words, production and market actors are able to organize themselves to meet the demand of local consumers, and the close relationships between these actors - geographical proximity, cultural, relational - favour this response (Adekunle et al., 2012; Moustier, 2012). In this logic, "Innovation platforms can be instrumental for need based on context fit quality research for development. Those IPs are dependent on need and motivations of stakeholders" (Jarial et al., 2015, p. 207). In addition, the existing organizations are effective to solve imperfect information constraints on transactions for credit and goods and have positive effects on all agents in the sector. Otherwise, the producer organizations, in addition to their role in the economies of scale, can substitute to non-existent or deficient markets, and facilitate producer access to markets (Moustier, 2012). Positive change can involve stakeholders for a win-win situation. For the sustainability of IPs, it should be locally managed.

#### 4. Material and methods

This research, based on the mixed methodology, was conducted in the rice hub<sup>1</sup> of Glazoué in department of Collines in Benin. This approach allows the generalization of results and a better understanding of research problems a single method (Creswell & Plano Clark, 2006). Thus, we used a non-probability sampling method based on "multiple operationalism" (Campbell & Fiske, 1959). This approach has been implemented in this context, through the stratification of the units of the target population. Then the simple random sampling has been done to select groups (rice producers and rice parboiled women) in local rice value chains. The advantage of this method is to create homogeneity in heterogeneous groups.

Two different techniques were used for data collection, complemented by the participatory and non-participatory observations. Firstly, secondary data on different value chains of the rice sector were obtained through a literature review in the library of Africa Rice Centre (AfricaRice) and libraries

of national and private institutions of research and development. Secondly, qualitative primary data were obtained from group discussions based on a comprehensive interview (Kaufmann, 1996). These interviews took place at the village level with key actors of the local rice value chains (producers, processors/steamers) and resource persons. Moreover, other rice value chain actors and members of the rice innovation platform (public and private agricultural extension agents, microfinance) were interviewed individually. Similarly, semi-structured individual interviews were held with traders and consumers of local rice to collect their perception on local rice and operation of value chains on as well as their knowledge and involvement in the rice IPs. A total of twenty (20) focus group with 10 to 15 participants were conducted, five individual interviews with institutional stakeholders and 40 semi-structured interviews with traders and consumers of local rice. This sample is distributed across four towns in the rice hub namely Glazoué, Dassa-Zoumé, Savalou and Bantè and in the two towns covered by the IP: Savè and Ouèssè. The data collection phase lasted from July 2015 to March 2016.

Data were collected on access to production factors, the game of power within value chains, the individual and collective strategies of local rice marketing, the degree of freedom of each actor, and flow of information and resources among the different actors of local rice value chains. Data on the influence of the actors in the value chain were estimated through the construction of relational impact matrices before and after the establishment of platforms. A “dodecagram” indicating the relative influence of each stakeholder in the value chain was constructed on the basis of a score from 0 to 5: 0 = no influence in the chain, and 5 = very high influence in the chain (Sanyang, Pyburn, Mur, & Audet-Bélanger, 2014, p. 162). To obtain effective score, we used five stones which correspond to each scale. For the “parboiled” value chain, two “dodecagram” were built and were the subject of discussion in a plenary for validation with the majority of actors in the innovation platform. All interviews (group or individual) were systematically recorded and transcribed. The qualitative data were examined by analytical questioning combined with thematic content analysis (Paillé & Mucchielli, 2013).

## 5. Results

### 5.1. Local rice in the hub of Glazoué

#### 5.1.1. Stakeholder mapping of the local rice value chain

The analysis of the local rice value chains shows the existence of several actors who play an important role in rice sector development. Three main chains have been identified: the “white rice” value chain, the “parboiled rice for the local market” value chain and the “parboiled rice for the regional market” value chain. The parboiled rice for the regional market value chain is not addressed in this research because the networks involved in this chain are not well defined and available data are not sufficient (Figure 1).

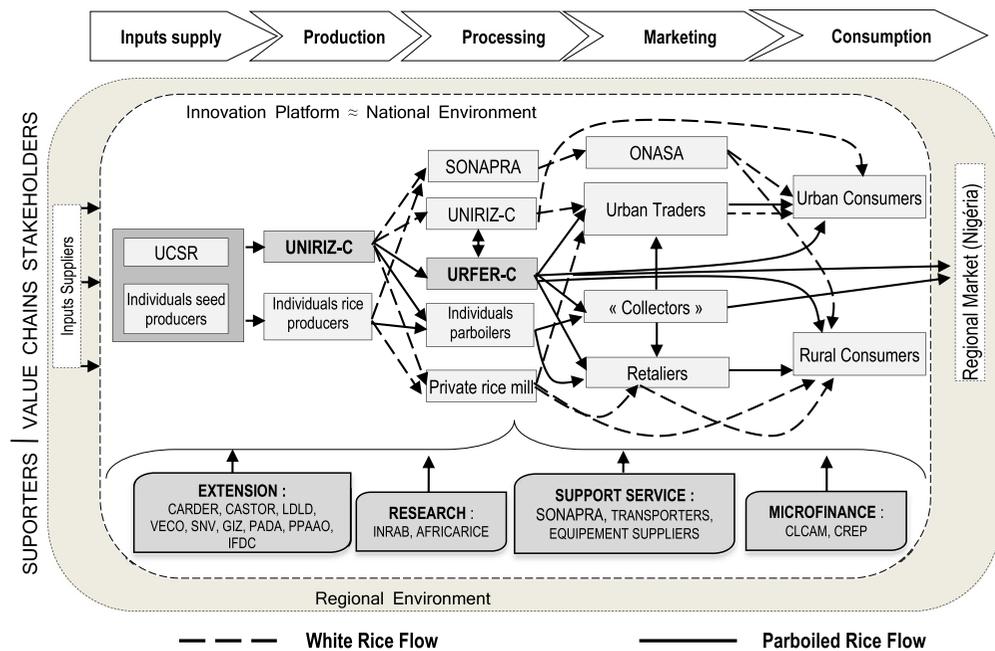
#### 5.1.2. White rice value chain

This is white rice processed in mills. Upstream of the chain, producers, members of the regional rice farmers’ union (UNIRIZ) and individual deliver paddy to processors or process it themselves. Processors are represented by the national agriculture promotion company (ex SONAPRA) through its large rice mill located in the area, UNIRIZ, and individual private processing units. The rice processed in the ex SONAPRA mill is delivered to the national food security office (ex ONASA) which is responsible for the distribution through its stores. White rice from processing units is bought by urban and rural traders who supply to consumers (Figure 1).

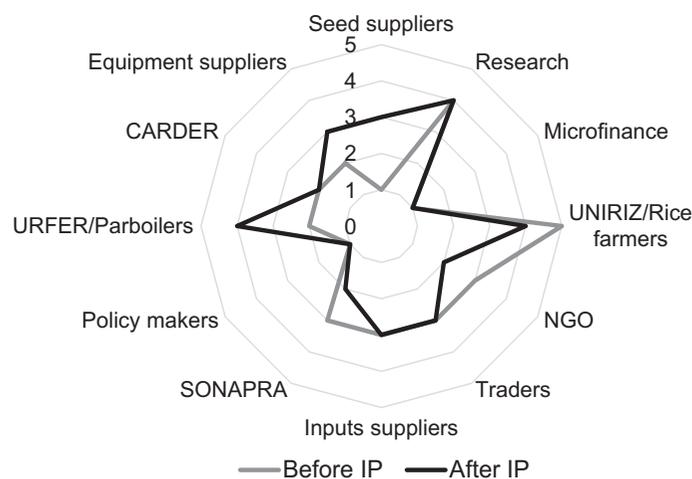
#### 5.1.3. Parboiled rice value chain for the local market

This value chain involves processing of paddy in small *Engelberg* type of processing units or in mini rice processing mills. The parboiling is performed either by archaic equipment or with improved parboiled kits. The parboiling is done individually or at the rice parboiling complex set up as part of the innovation platform. This value chain is run by the regional women parboilers’ union (URFER) or

**Figure 1. Mapping of value chains of the local rice in the Glazoue Hub.**



**Figure 2. Level of influence of the stakeholders of the value chain “parboiled rice”.**



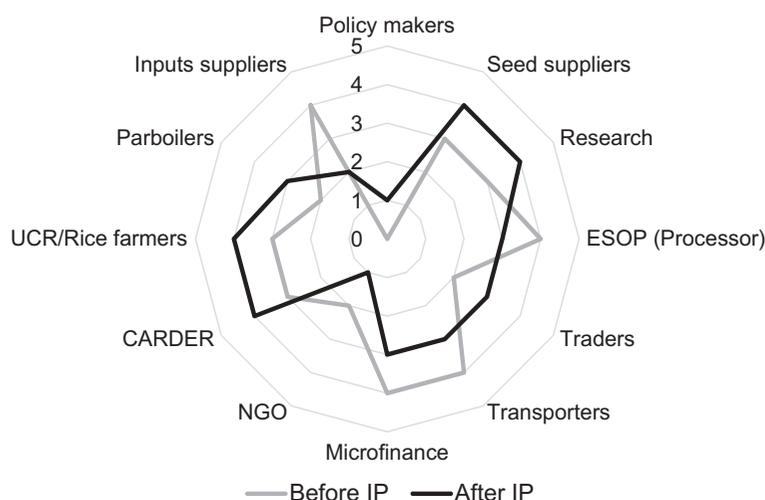
individually. Milled parboiled rice coming from the URFER is delivered to urban merchants for urban consumers, retailers and to local markets for rural consumers and collectors who supply the sub regional market including Nigeria. Sometimes the urban and rural consumers at the local level receive parboiled rice directly from URFER itself. This value chain comprises a very strong network of institutional actors (Figure 1).

## 6. Governance of local rice value chains in the hub of Glazoué

### 6.1. Power game within the local rice value chain: Towards a reconfiguration

Local rice in the rice hub of Glazoué is characterized by two dominant products (white rice and parboiled rice) with two clearly structured farmers’ organizations as the links between the production and the processing stages. Overall, it appears that IPs have helped to make local rice value chain actors more visible (Figures 2 and 3).

**Figure 3. Level of influence of stakeholders of the value chain “white rice”.**



### 6.1.1. Parboiled rice value chain

The analysis of Figure 2 shows that seed companies, the women parboilers have improved their decision-making power by 2 points. While the equipment suppliers have improved it by 1 point. The actors interviewed explain this performance by the establishment of Regional Rice Women Parboilers Union which promoted the improvement of the quality of their product through changes in some practices. This organization allows them to conquer new markets both at national and regional levels. Consequently, producers of paddy are no longer totally dependent on ex SONAPRA for the sale of their produce; women parboilers now constitute a potential market due to the increased production. The improvement of capacities (knowledge, equipment) of these actors favoured by the establishment of IPs plays determinant roles. However, the actors feel that even if the volume of seed has increased, it remains that the quality of seeds produced is not yet satisfactory.

Moreover, some actors such as research, input (except seed) suppliers, traders, the national extension service (ex CARDER), microfinance institutions (MFIs) and the local government have retained their power with widely varying levels of influence (Figure 2). Indeed, the power of agricultural research in the local rice value chains is unanimously recognized by all actors. “Research is a keystone. Today, without research, we cannot talk about rice. It is because of it that there are changes in the rice field. The implementation of the platform has strengthened the visibility of research. It is now known by many actors. Prior research had focused its actions on NERICA, but currently it is doing enough and therefore remains indispensable in the rice sub-sector”. As for the input suppliers, their power was evaluated at 3 points since they are essential in the value chains of local rice. Even though the actors noted the absence of specific inputs for rice, they acknowledged that the lack of suppliers would be a constraint for local rice production. Similarly, parboiled rice traders are very influential in the value chain. The volume sold by these actors represents about 80% of the total volume of parboiled rice produced. Despite their very low level of organization, the traders of local rice remain at the interface between rural and urban consumers as well as at regional markets.

Institutional stakeholders such as ex CARDER, MFIs and the government representative at local level who support the parboiled rice value chain have less power. Interviews show that ex CARDER is more focused on export crops including cotton instead of crops such as rice. This view must be nuanced, because some stakeholders believe that with the development of IPs and the involvement of the agricultural extension, some changes are underway. However, it should be noted that although the role of ex CARDER is limited to that of agro-dealing, its sovereign power—in terms of leadership of local rice value chains—is almost unapparent. At least, ex CARDER becomes a service provider for projects and programs supporting the rice sector. Microfinance institutions including CLCAM (*Caisse Local de Crédit Agricole et Mutuel*) and CREP (*Caisse Rurale d’Epargne et de Prêt*) involved in IPs have

very limited power according to the actors: “Microcredit institutions are not agricultural microfinance institutions. Before, it was for agricultural actors but now it is for traders, businessmen. It is true that with the establishment of innovation platforms, microfinance institutions say they are willing to finance the farmers if they have a business plan”. However, CLCAM emphasized influence of the IP on access to credit by some rice actors even if the number is insignificant. The manager of the microfinance structure said that more formalization of relation between local rice value chain actors and the institution is necessary for mere engagement. He added: “Today, in terms of my involvement in supporting rice actors, my own personality sometimes is determinant in our relationships. Someone else might not have the same involvement. But when the relationship is formalized between the customers and the microfinance, it may be an arrangement which relies on formal relations and therefore its actions are not necessarily linked to a person”.

UNIRIZ, ex SONAPRA and especially local NGOs had their power weakened (Figure 2). The UNIRIZ occupies a strategic position in the local rice value chain. Its power is estimated at a scale of 5. The surveys estimate that this umbrella body held almost all power, from production to marketing before the IPs implementation. The birth of the URFER coupled with the establishment of platforms has brought light in the minds of some actors especially the women parboilers who have seen their power strengthened both in terms of decision-making, resource ownership and control. Hence the power of UNIRIZ decreased by one point. In their assessment, women parboilers, who represent about 60% of rice producers claim that the disappearance of the UNIRIZ as umbrella, would result in lower production. The second institution weakened by the strengthened capacity of the URFER is ex SONAPRA. Indeed, with the establishment of URFER, a large quantity of paddy is no more delivered to the mill of ex SONAPRA, because URFER is a new market opportunity for local rice farmers. The influence of local NGOs is not very visible and has weakened in recent years. This decline is not due to the innovation platform, but certainly due to their brokerage policy more geared towards farmers’ organizations.

#### 6.1.2. *White rice value chain*

Rice producers have considerable importance in the white rice value chain (Figure 3). Unlike the parboiled rice value chain, paddy undergoes no transformation before moving to the shelling stage. This practice implies that producer are strategic actors who remain influential in the chain. This is probably what has strengthened the power of producers by one point from 3 to 4. The speech of a producer during focus group illustrates this perception: “Each actor is in the same level because before everyone was rice producer, but now traders give us more respect”. In other words, producers have improved their visibility, which gave them some power in the white rice value chain. It would be premature to conclude that the improvement of power is due to the innovation platform. However, capacity building of producers in equipment through the innovation platform could be an explanatory factor. The situation observed in seed is similar to that of the parboiled rice value chain. However, the actors interviewed also mentioned the laudable efforts of research that has provided considerable support in this area: “Many producers were not interested in certified seed prior to the implementation of the innovation platform. The platform made producers to be aware that good production starts by having good seeds”. However, this opinion is mixed as some players felt that the quality of the seeds produced by seed producers remains doubtful.

The integration of parboilers in the white rice value chain is not a trivial fact or an error. It belongs to a certain dynamic of the actors and of the platform itself. Indeed, the women parboilers contribute to improving the quality of rice produced by ESOP (*Entreprise de Services et Organisations des Producteurs*), leader of the white rice IP. This enterprise sometimes solicits the women parboilers in cases when dealing with poor quality of paddy, as parboiling improves the quality of the finished product. In turn, the women parboilers refer to the ESOP for the supply of raw materials and shelling services. Thus, as a result of the innovation platform, the relationship between these two actors and the other actors in the value chain has improved. This has strengthened the power of the women parboilers from a scale of 2 to 3. Similarly, traders of local white rice have seen their power reinforced

to one point. Their influence in the value chain is explained by the volume of white rice they sell both locally and in urban areas (Figure 3).

At the level of institutional actors, the local representative of the government that was until the recent past invisible in the rice sector, has improved in terms of influence in the white rice value chain. With the innovation platform, the government is now consulted and invited to accompany the rice stakeholders. Therefore, the interventions of the government and decision made in favour of white rice value chain are positive steps that have given it power. Unlike the parboiled rice value chain, the actors here acknowledge the sovereign role of ex CARDER in agricultural advice. They believe it is influential with a rated power 3. Even though this influence remained unchanged with the introduction of the platform, the visibility of ex CARDER's agents has improved. ex CARDER agents are hence oriented towards crops such as rice—not just cotton.

Furthermore, there is a rebalancing among the different actors (Figure 3). These actors are ESOP, transporters, input suppliers, NGOs and CLCAM. Several factors have contributed to weakening of the level of influence of these actors. Indeed, the emergence of new economic operators in the areas of processing (deshelling facility other than ESOP) and transport (tricycles onset) is the main determinant of the weakening power of ESOP and carriers from a scale of 4 to 3. This is why the interviewed actors have stressed the interaction within the platform that has increased access to information and weakened the power of ESOP. As for the input suppliers, their power has decreased from 4 to 2 due to the limited availability of food inputs. It is the same for NGOs which intervene in the rice sector and are currently almost absent. Like the value chain of parboiled rice, skills transfer to farmers' organizations undoubtedly weakens NGOs who assumed the role of development brokers. Their power was thus narrowed by one point from 2 to 1. Similarly, the CLCAM has seen its power reduced from 4 to 3. While CLCAM was formerly unavoidable in the white rice value chain, producers have nowadays found other mechanisms to finance their production. In addition, stakeholders have noted that the presence of CLCAM in the platform does not prevent him to use forces for the settlement of conflicts. Obviously, this weakening of CLCAM's power is not due to the IPs implementation but to the limited access to credit by rice farmers. In fact, negotiations between farmers and the CLCAM through the IP are in progress to facilitate the access to credit.

### **6.2. Parboiling complex of rice in Glazoué: A mirage of the parboiled rice value chain governance**

This section is intended as a case study on local rice marketing and aims to evaluate the leadership within rice organizations present in the parboiled rice value chain. The implementation of the Rice Parboiling Complex (RPC) integrated with the Grain quality, Efficient Energy and resistant Materials durability (GEM: an improved parboiling system) essentially aimed to qualitatively and quantitatively improve local production of parboiled rice in the rice innovation platform. Inevitably, this improvement requires good management of the resources invested in the complex and good governance of rice organizations including women parboilers since the governance of the “parboiled” rice value chain depends on that. While it is true that the conflicts within this value chain date back to the establishment of the umbrella of the women parboilers, we focus our study on the management and governance after establishment of the RPC.

Furthermore, analysis of resources management and governance of local organizations (groups of women rice parboilers or producers of at village) highlighted some transparency and participation of members in decision-making process. This fair and collaborative governance in local structures should contribute to the good governance of umbrella structures, *ceteris paribus sic stantibus*. Unfortunately, all the actors interviewed during discussion group or individually interviewed were unanimous on poor governance within the umbrella of organizations in the of parboiled rice value chain. A leader of URFER noted “They took URFER for their own interest. Those at the head monopolize everything. The group is declining, there is no agreement. They took us as their employees. It is no longer a common work. Some groups are marginalized”. This kind of statement, although edifying is paradoxical in view of the position occupied by the person who says it. The mismanagement is

characterized by grabbing, confiscation and individualization of collective resources, whether financial, physical or in form of information. Although the women parboilers recognized that there is in fact no ban on the access to equipment of the rice parboiling complex, they revealed that this access is subject to restrictive conditions.

The governance mode of URFER is characterized by opacity of managerial leaders. The new governance of the organization driven by the establishment of the RPC, instead of reducing the pain of women and improving their income substantially, it favoured the emergence of new elites in the parboiled rice value chain. Consequently, it appears that these elites have now imposed to the actors in the chain in general and the women parboilers in particular a private company for production and service delivery at the expense of hub of excellence for the production of parboiled rice quality. This type of governance is reinforced by UNIRIZ which has positioned itself not as a partner for the women parboilers but as an organization on which women depend. This situation requires the umbrella of the women parboilers to swear allegiance to the UNIRIZ which continues to influence all decisions along the value chain of parboiled rice.

That certainly explains the fact that the president of the URFER was included in the conference of presidents of municipal unions of UNIRIZ. It is important to note that both UNIRIZ and URFER are regional organizations that have the same structure and operating in the same geographical space. Formerly, the governance of the parboiled rice value chain was characterized by a degree of explicit coordination and power asymmetry between the different stakeholders including producers and buyers of raw materials that constitute the parboilers. In other words, the UNIRIZ coordinated the chain in a vertical integration way, making the women parboilers as service providers. This form of governance still seems to resist to the new structuring of the value chain. The establishment of the parboiled rice innovation platform and capacity building of URFER had not been enough to insufflate a new dynamic into the governance of the chain. It rather induced a transformation of the current leader of the women parboilers. Indeed, this woman is also the vice-president of the municipal union of rice farmers led by a (male) producer, who does not promote its visibility. The organization of the women parboilers is a regional union for which leadership and management component have been predefined by UNIRIZ and other development partners. This is seen by some value chain actors as a strategy to strengthen the power of the current president of women parboilers. It is perceived that the introduction of rice parboiling complex has only reinforced the existing mode of governance by giving power this time to the “women” to exploit “women”. In other words, the women parboilers still retain their status as service providers, and have become a specialized labour that are neither employed workers nor family workers in the service of a private firm that one can consider as a “fictive” enterprise to some great extent:

What are the reasons for this failure? We examine two major facts to support the claim of inequitable governance of the value chain: the “*Saveur*” (standing for “flavour”) label packaging and water supply.

Firstly, in light of failed experiences with UNIRIZ concerning the use of packaging by individual rice parboilers, it was required that the women parboilers, members of URFER, wanting to market their product under brand labelled “*Saveur*” should have control of the processed rice quality. A committee was set up by UNIRIZ at the processing unit<sup>2</sup> to perform the control before any packaging. The women parboilers are required to cover the cost of services (drying, milling, grading or sorting) and packaging costs. The parboiler can choose the option to sell its parboiled rice to URFER, if the quality is acceptable. In both cases, the most important constraint evoked by individual actors remains the transport costs that impede on the profitability of their business. The palliative solution proposed by an IFPRI<sup>3</sup> project does not seem to meet the expectations of the parboilers because of: (i) the conditions required to benefit from the paddy transportation subsidy to the processing unit; (ii) the absence of guarantee to sell their product at a competitive price at the processing unit. Indeed, the purchase price of parboiled rice offered to women is not economically profitable. This strategy to buy the product from women parboilers will help to control distribution networks for the rice labelled

“flavour”. Although the idea of centralized management of packaging is commendable, it remains that the current selling price of certified rice, the organization management practices and their legacy, and the conditions imposed on the women parboilers, are obstacles to overcome.

Secondly, the water supply-related problem is one of the major constraints for paddy processing operations in the study area. To mitigate this constraint, a water supply system has been integrated into the parboiling complex. Early, stakeholders have had the idea through their leaders to sell water to surrounding populations. Revenue from this activity should be used as working capital for paddy procurement, and for the management of travel expenses and maintenance of women invited for parboiling in order to have regular functioning of the complex. This endogenous innovation has received approval from AfricaRice. However, while the idea is innovative, its implementation deviates from the basic operating principles of an innovation platform. There are many questions for which answers are ambiguous and unclear: Are all categories of stakeholders in the innovation platform informed of the initiative? Are all women parboilers, members of URFER, informed and involved in decision-making? Is the management of revenues from the sale of water transparent and participatory? Is the revenue obtained actually serving to supply paddy and maintenance of women used as labour? The rice parboilers including individual women or their groups at the local level were not able to provide clear answers. Triangulation of collected responses of some key actors in the parboiled rice value chain, coupled with non-participatory observations in relation to this water selling activity, raises doubts related to the fundamental principles of appropriate governance. The management of this productive resource gives the appearance of creating a new economic enterprise that serves only few actors.

## 7. Discussion

In the hub of Glazoué, we identified and analysed two main local rice value chains: white rice value chain and parboiled rice value chain. Generally, the governance of these value chains is not clear, and is characterized by a nesting of actors within them. The performance of an agricultural value chain depends on the structure and organization of the various categories of stakeholders who are involved. However, the implementation of entities that facilitate the integration of the interests of different stakeholders in a kind of joint governance structure is a recent phenomenon that responds to the need for stronger and more effective participation (Klerkx & Aarts, 2013; Klerkx, Hall, & Leeuwis, 2009). Such governance cannot be limited to traditional hierarchical organization that generates an asymmetry of power within value chains. On the contrary, to be effective, it must be based on principles such as democracy, participation, fairness and justice, unity in diversity, transparency, inclusiveness, legitimacy and accountability (Schiffer et al., 2010). Thus, the mechanism for facilitating rice value chains should ultimately create equity along the value chains. This is through access to productive, commercial and informational resources as well as through the management of added value (Adekunle et al., 2012; Laven & Pyburn, 2015; Moustier, 2012; Nederlof et al., 2011). Although IPs often bring together less powerful actors and the most influential actors, this diversity should be a catalyst to develop solutions to common problems or to achieve a common goal (Cullen et al., 2013; Lamers, Schut, Klerkx, & van Asten, 2017). Indeed, these innovative institutional arrangements can help provide small producers a range of services that improve their access to resources and their negotiating power and access to information and knowledge. Therefore, the platforms could enable small producers to strengthen the autonomous capacity to articulate their needs and concerns and make them known by other economic actors and policy makers (Cadilhon, Pham, & Maass, 2016; Sanyang et al., 2015; Schut et al., 2016). Unfortunately, as observed in Glazoué, IPs may fail to achieve this goal, and instead foster information asymmetry in favour of a few actors in the value chain. Yet, regular communication among stakeholders reinforce the negotiation capacity of smallholders and make transactions more transparent (Programme des Nations Unies pour le Développement [PNUD], 2012).

In the local rice value chains that were analysed, leadership of the interaction and interrelationships between the various categories of stakeholders was virtually absent or faulty. In other words, a kind of ambivalent bipolarity is observed in the creation and distribution of wealth among the

actors of the local rice value chains. Although the rice value chain is profitable overall, there is a deterioration of terms of trade for small producers (Gereffi et al., 2005). This trend may be attributed incontestably to the low participation of small farmers (producers or parboilers) in consumer markets. Indeed, among the farmers involved in rice marketing, it is striking how their integration into urban markets, which constitutes the largest group of consumers of rice, remains limited (Colen, Demont, & Swinnen, 2013). Yet, producer organizations and local rice processors seem not to be interested in the access of their members to markets. This is contrary to the theory of the economy of rural organizations, which establishes that farmers' organizations are effective in reducing imperfect information about the transactions and have positive effects for all actors of value chains (Moustier, 2012, p. 28). In contrast, the actions of these organizations are primarily intended to place them in a vertical integration aimed at maximizing the economic benefit to the detriment of the interests of members. It means that "the professional capacity of farmers' organizations in terms of management and marketing needed to carry out such tasks remain insufficient" (Colen et al., 2013, p. 439). It therefore follows that the major challenge in these rice organizations is to redefine the system of governance, including members' involvement in the processes of management and decision-making and their capacity building assume positions of responsibility with all the required efficiency (Programme des Nations Unies pour le Développement, 2012). Thus, the different forms of interaction are necessary to build consensus rather than rules of authority (Schiffer et al., 2010). Confiscation of resources and curtailing the freedom of production actors and their access to urban markets by the umbrella organizations are signs of establishing a form of captive or hierarchical governance (Gereffi et al., 2005). Indeed, in these modes of governance, information disseminated is often complex. Stakeholders are therefore, embedded in a monitoring and control system at the expense of reciprocity (Gereffi et al., 2005; Moustier, 2012; Soulier, 2013). Under these conditions, the benefits generated by the different actors of the value chain are reaped by the dominant actors. An increasing share of the economic value is captured by those who can control the necessary information for the normal functioning of the value chains (Palpacuer & Balas, 2010). Therefore, in this model, the asymmetry of power relations requires suppliers to often accept unfavourable terms of trade and a high degree of control on the part of the buyers (Gereffi et al., 2005). As rice is a commodity that can be stored for a relatively long time, it does not generally require coordination means that could compel rice farmers and parboilers to a totalitarian dependence to umbrella organizations.

At the local consumer markets, in the case of the parboiled rice, transactions remain open to all actors operating in the value chain. At this level, exchanges between suppliers and buyers (producers of paddy and women parboilers as well as, women parboilers and rice traders) are based on market relations. In other words, the relationships between the different actors are usually opportunistic, very short and mainly based on the price and quantity of traded products (Gereffi et al., 2005; Moustier, 2012; Soulier, 2013). In the case of Glazoué, some women parboilers reported that they have special relations with producers in order to guarantee the quality of the supplied paddy. Sometimes, farmers use pre-financing of production by buyers who, in this case, affect the production process. Beyond funding, these strategies also allow better access to inputs and markets. In these forms of relationship, trust appears as the golden rule and results in repeated transactions without any formal arrangement. Such relationships are especially important in a context where there is instability in terms of production, prices and risks related to the quality of rice; forcing the actors to find coping strategies through physical and relational proximity (Moustier, 2012; Soulier, 2013). These relationships work as a system of mutual claims (Greif, 1993). In this context, relationships help to reduce uncertainty in terms of quantity, quality and price of transactions, information share and are favourable to innovation (Moustier, 2012).

## 8. Conclusions and policy implications

Local rice value chains are characterized by inequitable access to resources of actors and control of power by some of them, which generates inequalities within stakeholder groups. Moreover, the flow of information and knowledge sharing are still concentrated at the level of a few key actors. The establishment of IPs was seen by stakeholders as reflecting a certain close relationship which was to facilitate access to production factors and also to limit the risk of uncertainties or their

management. These IPs have thus contributed to greater visibility and strengthened the power of some emerging players, while weakening other actors who seemed to have a monopoly on value chains. However, the IPs have so far not contributed enough to empower this group of actors in terms of decision-making and governance. The influence of the IPs on trade facilitation and interaction between different actors is still insufficient. The adverse effects of the poor management of resources limit the impact of various actions implemented through IPs.

First of all, the expected results from IPs depend on their level of functioning, and the involvement and motivation of stakeholders. Unfortunately, IPs in the study area suffer from lethargy due to lack of systematic facilitation despite the resources invested in the project. In fact, besides professional skills, social relations with the community and personal motivation of the facilitator are important determinants in facilitating IPs. Moreover, the question of representativeness in the platforms must be taken into account to obtain the support of all categories of stakeholders in the local rice value chain.

Second, good governance of the value chain is a result of the actions of the stakeholders involved along the chains. Confiscation of resources and even of power by a minority of actors in a group is not likely to favour the interactions between all actors of the value chain. While internal democracy is assumed to exist within these organizations, the perversion of power by the leaders sometimes induced open or latent conflicts between different actors. This affects the horizontal and vertical relationships in the value chain. Thus, the right to productive resources, the share of added value, the flow of information, the participation in decision-making committees are often unfair and unbalanced. These findings are more visible in the “parboiled” value chain, in which the URFER organization seems to exist only by its name. This mode of management of organizations involved in the local rice value chain greatly reduces the overall governance of value chain. Consequently, it is imperative to review the governance of IPs by establishing effective coordination and facilitation teams. The mechanism of financing value chains through IPs should be reviewed to encourage beneficiaries to contribute to investment. In other words, the development model should be oriented towards a “business idea” approach rather than the “project approach” to instaurate, within local rice value chain, a fair and concerted governance.

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#### Notes

1. The rice hub is an agro-ecological zone with a concentration of research and extension work integrated along the value rice chain for more impact. This strategy is facilitated by the establishment of innovation platforms. The hub includes four municipalities of the department of Collines.
2. The “UNIRIZ processing unit” is set of the rice mill of UNIRIZ and the parboiling rice complex owned by URFER.
3. The project initiated by the International Food Policy Research Institute (IFPRI) aims to solve constrain related to transportation of products (including paddy) to parboiling complex in order to motivate the women parboilers to the use of innovations integrated in the complex. This support initiative, although encouraging, has not took into account the groups of the women parboilers in village level. Previsions show that a group of women can process at the complex at most 2.5 tons of paddy a year. In this context, individual are not taken into account. In 2015, we have noticed, despite the difficulties of access to raw materials due to rain scarcity, that individual rice parboiling production reached on average 10 tons of paddy per year. That is 5 times what is planned from a group of 15 women at the complex in year.

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