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Research paper

How does institutional embeddedness shape innovation platforms? A diagnostic study of three districts in the Upper West Region of Ghana

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ABSTRACT

Innovation platforms have emerged as a way of enhancing the resilience of agricultural and food systems in the face of environmental change. Consequently, a great deal of theoretical reflection and empirical research have been devoted to the goal of understanding the factors that enhance and constrain their functionality. In this article, we further examine this enquiry by applying the concept of institutional embeddedness, understood as encompassing elements of platform design, structure, and functions as well as aspects of the broader historical, political, and social context to which platforms are connected. We present a case study of sub-national platforms established in three districts of the climatically-stressed Upper West Region of Ghana and charged with facilitating climate change responses at the local level and channelling community priorities into national climate change policy. A different kind of organization − the traditional chief council, the agricultural extension service, and a local NGO − was chosen by members to convene and coordinate the platform in each district. We examine platform members' accounts of the platform formation and selection of facilitating agent, their vision for platform roles, and their understandings of platform agenda and impacts. We analyse these narratives through the lens of institutional embeddedness, as expressed mostly, but not solely, by the choice of facilitating agents. We illustrate how the organizational position − and related vested interests − of facilitating agents contribute to shaping platform agendas, functions, and outcomes. This process hinges on the deployment of legitimacy claims, which may appeal to cultural tradition, technical expertise, community engagement, and dominant scientific narratives on climate change. Iinstitutional embeddedness is thereby shown to be a critical aspect of agency in multi-actor processes, contributing to framing local understandings of the climate change and to channelling collective efforts towards select response strategies. In conclusion, we stress that the institutional identity of facilitating agents and their relationship to members of the platform and to powerholders in the broader context provides a useful diagnostic lens to analyse the processes that shape the platform's ability to achieve its goals.

1. Introduction

The latest Intergovernmental Panel on Climate Change (IPCC) assessment finds strong consensus that climate change will negatively impact food security worldwide, but especially in Africa due to its rapid population growth, dependence on rainfed crop production, and persistent poverty and dearth of livelihood alternatives in rural areas (Niang et al., 2014; Campbell et al., 2016). Extreme climatic events combined with soil erosion, pests and diseases, and other environmental effects are very likely to result in declining yields of food crops and reduced ability of rural households to adapt (Connolly-Boutin and Smit, 2016). There is high confidence that these trends will interact with non-climate stressors to exacerbate the vulnerability of agricultural and food systems, particularly in semi-arid regions where the large majority of the population depends on cereal crop production for their subsistence (Campbell et al., 2016). The IPCC report recognizes that more than mere technical solutions are needed to respond to climatic shocks in the short-term and to prepare for uncertain climate conditions in the long term. In particular, it highlights the need for participatory research approaches and communication networks involving scientists, farmers, and other key actors (Niang et al., 2014; Douxchamps et al., 2016).

It is now recognized that the resilience of African agricultural and food systems hinges on institutional arrangements that can help farmers

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address climatic and non-climatic drivers (Roling et al., 2012). Increasing attention has been therefore directed to diagnosing the barriers and enablers – norms, policies, processes, alliances, etc. – remove hindrances and promote innovation at multiple scales (Roling et al., 2012). Diagnostics investigations deploy observation, comparison, and experimentation to identify what constraints can be realistically addressed and what are the appropriate intervention options and levers to do so (Rodrik, 2010). They span multiple scales, including studies of national economies and policies (Rodrik, 2010), contextually sensitive analytics of governance at meso-levels (Chaudhury et al., 2016), and cases studies of locally-embedded innovation systems (Campbell et al., 2016). As African countries increasingly embrace decentralization (Olowu and Wunsch, 2004), diagnostic analyses of institutional innovations at sub-national levels can link centrally-devised policies with localized priorities and practices (Roncoli et al., 2016).

Multi-actor platforms have been identified as promising institutional mechanisms that can foster transformative changes in agricultural economies and have therefore been the focus of diagnostic enquiry and experimentation (Klerkx et al., 2013; Schut et al., 2015; Sanyang et al., 2016). The term denotes a structured space that enables interaction among social actors, entailing a multiplicity of modalities and functions (Kilelu et al., 2011). For example it may refer to a virtual tool in information and communication (Pahl-Wostl and Hare, 2004), an integrated agricultural research program (Schut et al., 2015), a landscape-wide network for natural resource management (Cullen et al., 2014), a multi-scale, multi-actor, value chain consortium (Kilelu et al., 2013), or a private-public partnership for market development (Thiele et al., 2011). In this study, we conceptualize multi-stakeholder platforms broadly as structured spaces for communication and collaboration among interdependent stakeholders who come together to pursue a shared goal or address a common challenge (Cullen et al., 2014; Kilelu et al., 2013; Thiele et al., 2011). Though platform engagement, differently-positioned actors work together in identifying needs, negotiating priorities, identifying solutions, mobilizing resources, building capacity, and participating in co-learning and collective action (Kilelu et al., 2011, 2013; Turner et al., 2016). The assumption behind this approach is that the pooling of knowledge and experiences generates technological and institutional innovations that address stakeholders' priorities and are adapted their circumstances (Holmes, 2011).

Comparative analyses of platform experiences in different countries have yielded key lessons for platform formation and functionality (van Paassen et al., 2013; Swaans et al., 2013; Hermans et al., 2017). In particular, empirical studies have highlighted the importance of stakeholder coordination and network orchestration in creating an enabling environment for innovation (Cullen et al., 2014; Swaans et al., 2013). Social actors who play these roles may be referred as "facilitators" (Nederlof and Pyburn, 2012), "intermediaries" (Kilelu et al., 2013; Howells, 2006), "conveners" (Dore and Lebel, 2010), "brokers" (Cullen et al., 2014; Klerkx and Gildemacher, 2012), "entrepreneurs" (Luke et al., 2010), "champions" (Klerkx and Aarts, 2013), or "promotors" (Klerkx and Aarts, 2013). The different terms reflect variation in the extent to which these actors' position and functions are formalized, the authority and responsibilities they entrusted with, and in which context and at what scale they operate. We opt to use "facilitating agent" to highlight their envisioned role as catalysts of synergies as well as the agency they exercise in performing their roles. While many studies have discussed the organizational positioning, operational modalities, and distributive nature of these agents (Kilelu et al., 2011; van Paassen et al., 2013; Klerkx and Aarts, 2013), they have largely focused on the implications of those features for stakeholder integration, interactions, and inclusiveness. Insufficient efforts have been directed to more subtle processes, such as how the choice of facilitating agents affects problem framing and agenda setting. Such knowledge is critical to improving the design of innovation systems and supportive policies.

In this article we address this challenge by applying an analytical lens to an experience of multi-actor platforms in three climatically-stressed districts of the Upper West Region of Ghana. The platforms were established by a similar process and with the same goal of supporting adaptive strategies and food security in response to climate change, but differ in terms of leadership and, to some extent, composition. Each district platform is facilitated by a different entity – respectively a local development NGO, a government agency, and the traditional authority, a reflective variation of historical influences and patterns of public authority in the region. Following a definition of our theoretical position, we describe the research setting and methods. The core section of the article analyses the processes of platform formation, selection of platform facilitators, members' visions of the platform role, and the platform agendas and outcomes as represented in respondents' narratives. Finally, we highlight conceptual insights and methodological lessons emerging from this study that can guide the design of institutional innovations in small-holder agriculture and food systems in Africa.

2. Theoretical framework

Two main theoretical approaches – known as mainstream and critical institutionalism – have been deployed to study institutional frameworks, the former focusing on design, the latter on context (Hall et al., 2014; Nielsen, 2001). Mainstream institutionalism emerged from Ostrom's analysis of collective action in environmental management and seeks to uncover features that are predictive of success, such as stakeholder involvement and resource monitoring (Ostrom, 2009). Critical institutionalism challenges such emphasis, claiming that efforts to "get the institution right" fail to address systemic drivers of global poverty, environmental degradation, and livelihood insecurity (Hall et al., 2014). These theorists stress that collective action institutions must be analysed in relation to the historical and political context in which they are embedded. From this standpoint, institutional innovations are seen as "*the outcome of the accidents of history rather than design, an assemblage that no single actor commands or understands in its entirety*" (Jiggins, 2012). In our article we take the "middle way" between these two approaches. On the one hand, we believe that choices concerning organizational design, composition, leadership, and procedures do matter as they embody political agency by giving voice to select groups and visibility to specific issues. On the other hand, we recognize that the design of new organizational frameworks is operationalized in a context of historically contingent, locally-specific dynamics of power and authority that play out in unpredictable and uncontrollable ways. In fact, growing empirical evidence suggests that the viability and outcomes of multi-stakeholder platforms are shaped by an array of factors, some pertaining to design, others emanating from context (Nederlof and Pyburn, 2012; Howells, 2006).

A focus on design illuminates the agency that is embodied in processes of platform formation or facilitation (Schut et al., 2015; Cullen et al., 2014; van Paassen et al., 2013). Platforms seldom emerge spontaneously; rather, they are typically established by a research or development project (Kilelu et al., 2013) a public or private sector agent, (Klerkx et al., 2015), a national or local stakeholder group (Warner, 2006). Platform development and coordination entails a panoply of strategic choices, including how to recruit and engage participants and how to foster communications and collaboration among them (Klerkx et al., 2013). In seeking to elucidate the effect of facilitating agents on platform functioning, the innovation systems literature has mostly focused on individual characteristics, such as attitudes, skills, and capacities (Cullen et al., 2014), dynamism and commitment (Klerkx et al., 2013), and experience, personality, and leadership qualities (van Paassen et al., 2013). There has been less attention to whether and how the organizational position, linkages, interests, and commitments of facilitators may affect platform agendas and outcomes (Kilelu et al., 2013; Turner et al., 2016). For example, in a comparative

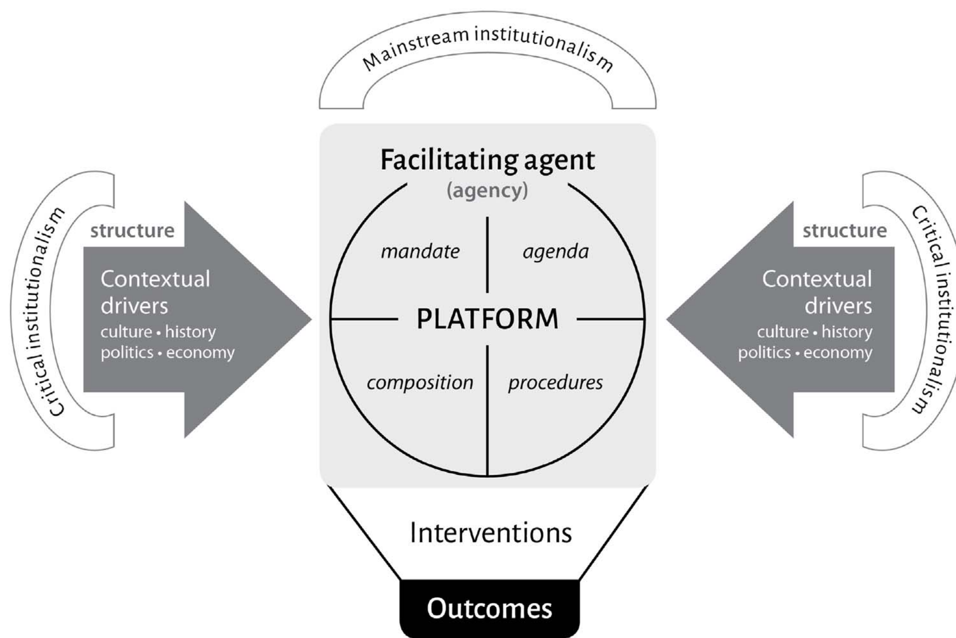

Fig. 1. Institutional embeddedness of innovation platforms.

analysis of three innovation platforms in Ghana, Klerkx et al. (2013) show that "champions" who were connected to higher-scale policy or research centres were better able to catalyse institutional change, such as favourable policies and price harmonisation. This study was part of the Convergence of Sciences – Strengthening Innovation Systems (CoS-SIS) program, which examined the role of Concertation and Innovation Platforms (CIG) in value chain development in West Africa (Klerkx et al., 2013; van Paassen et al., 2013). Adopting a multi-scalar approach, CoS-SIS created "action" platforms at the sub-national level (mandated to promote local concerns and priorities) and "policy" platforms at the national level (charged with addressing structural constraints by way of policy advocacy and reform). The CoS-SIS experience with multi-actor platforms showed that researchers can be effective facilitators of national level platforms, given the respect they garner among high-ranking stakeholders and policy-makers as informed and impartial intermediaries. NGO personnel or hired consultants may also be perceived as unbiased agents and entrusted with platform coordination (Cullen et al., 2014). In contrast, capable and committed local stakeholders are often better positioned than scientists and other external actors to mediate district level processes because of their contextual knowledge and rapport with communities (van Paassen et al., 2013). These insights are critical for the design of leadership configurations in innovation platforms.

Unlike mainstream institutionalists, who seek to optimize the specific roles, norms, and processes that sustain collective action, critical institutionalists focus on the broader context. Recent diagnostics of innovation systems for agricultural development and food security call for greater attention to structural determinants and entrenched inequalities that perpetuate vulnerabilities and prevent adaptation (Cullen et al., 2014; Turner et al., 2016). This perspective highlights how individuals and the organizations they belong toare embedded in a web of historical legacies, cultural influences, political logics, and economic drivers that shape and frame their practices. This context shapes the multiple agendas that platform facilitators and participants bring to the table and the possibilities of building trust, respect, and cooperation among them (Klerkx and Leeuwis, 2009). For example, in their study of innovation platforms established by the Nile Basin Development Council (NBDC) Cullen et al. (2014) acknowledge that the supposed neutrality of external actors – such as researchers or NGOs – is often limited by their dependence upon the support of local leaders and elites to implement activities and mobilize communities. Others note that scientists – especially biophysical ones – often lack training in participatory approaches and stakeholder interaction (Cullen et al., 2014). They may be prone to assume the role of the "expert" and disregard non-scientific knowledge (Klerkx et al., 2017). In recruiting participants, inexperienced researchers may privilege individuals they can trust to cooperate and perform, such as contact farmers, who may be more prosperous or educated than their peers (Cullen et al., 2014; van Paassen et al., 2013). They may impose procedures and select meeting venues and formats that marginalize women, poor farmers, and other vulnerable groups. The organizational setting in which platforms are formed and managed can also distort their operations. For instance, when platforms are part of larger research programs, it is often the case that funding cycles, donor priorities, administrative requirements, and publication imperatives take precedence over localized concerns and calendars (Schut et al., 2015; Klerkx et al., 2017). Furthermore, a reflexive enquiry into the social practices and power dynamics that characterize stakeholder interactions may be discouraged by the hierarchical culture of development projects (Cullen et al., 2014) or national and international agricultural research centres (Schut et al., 2015) or development discourages (Cullen et al., 2014). Given such context, expert-led facilitation can inadvertently lead to "managerial containment", thereby obfuscating divergences of interests and opinions and foregrounding outsiders' pre-conceived views of problems and of possible solutions (Sherman and Ford, 2014). On the other hand, facilitation by "insiders", such as community-based organizations or district-level committees, can be captured by local power-holders or get entangled with place-based politics and conflicts (Cullen et al., 2014).

This article explores whether and how the entities entrusted with facilitation influence platform operations and potential outcomes. We apply a hybrid conceptual framework that bridges mainstream institutionalist interest in platform design – its mandate, agenda, composition, and procedures – as well as the critical institutionalist emphasis on structural determinants that emanate from political economy and history (Fig. 1). These drivers direct the identification of facilitating agents towards certain stakeholders, configuring their goals, roles, and power in decision making. Within the bounds set by structure, entities selected to host the platform can exercise agency by shaping member participation and by steering operationalization towards their own priorities. We refer to the "institutional embeddedness" of innovation platforms to signify the influence of those contextual factors (Cullen et al., 2014) combined with the effects of platform being created within

certain programmatic settings (e.g. research or development projects) and being coordinated by different entities, each with their own sets of capabilities and commitments (Schut et al., 2015). In the next section, we outline the historical and institutional processes that are central to a critical institutionalist perspective as well as the research practices that led to the insights presented in the article.

3. Research context and design

The study was carried out in the context of the Climate Change, Agriculture and Food Security (CCAFS) program, an interdisciplinary research initiative of the CGIAR system that seeks to address climate change through an integrated portfolio of practices, policies and partnerships. Among key CCAFS activities in Ghana (as in other CCAFS countries) is the promotion of technologies and practices that capture synergies between climate change adaptation and mitigation. The program also seeks to foster the development of institutions and policies that more responsive to local level concerns through the creation of science-policy platforms at national and sub-national levels. Test-beds for this effort are “climate-smart villages” – two in each CCAFS country – including Doggoh in Jirapa district and Bompari in Lawra district. They are located in the Upper West Region of Ghana, where research activities begun in 2012. Given this backdrop of relationships and interventions, the research discussed in this article benefited from significant contextual knowledge provided by baseline surveys (Peterson, 2014) and stakeholder analyses (Sova et al., 2016).

3.1. Site characteristics

The study site is situated in northwest Ghana and characterized by a semi-arid environment (Fig. 2). The three cases are at the same scale–district level, and are located close to one another and share similar agro-ecology and socio-cultural conditions. In the Upper West Region, a single rainy season, spanning between April and October, provides most annual rainfall. Data from Ghana Meteorological Agency station based in the regional capital of Wa shows high level of rainfall variability, with a long term mean of 1036 mm (1953–2011), ranging between 523.7 mm (1986) and 1036 mm (1963) (Nyantakyi-Frimpong and Bezner-Kerr, 2015). The data suggest that during the last 20 years planting rains (defined as 20–30 mm followed by no more than 10 dry days) have shifted from mid-March to April-May, a change that is consistently with farmers’ perceptions (Nyantakyi-Frimpong and Bezner-Kerr, 2015). Likewise, there is evidence that dry spells and heavy rains during the rainy season have become more frequent, while average temperatures during the dry season have also increased (Nyantakyi-Frimpong and Bezner-Kerr, 2015).

Given that local households rely upon rainfed crops (notably maize, sorghum, millet, legumes, and rice) for their livelihoods, this variability causes severe food insecurity and rural poverty (Yahaya and Amoah, 2013). The effect of climate fluctuations is exacerbated by land scarcity and soil depletion (Sijmons et al., 2013). Land use in Jirapa and Lawra districts is being affected by expropriations and disruption for gold prospecting and mining, which has resulted in local protests (Moomen et al., 2016). Migration remains a key strategy to cope with rainfall variability and food shortage (Kuuire et al., 2016). This trend reflects the lack of opportunities for economic diversification in the region and negatively affects farming capacity, particularly among the poorer (often, smaller) households (Rademacher-Schulz et al., 2014). The Upper West Region still ranks among the lowest in terms of public investments (Konadu-Agyemang, 2000) and has the highest poverty rate in the country – estimated at 70.7%, with the study districts having even higher rates than the regional average (Amanor, 2011). Hunger is common even in years of normal rainfall: as a survey found that one third (34.5%) of household in a Lawra village to be severely food insecure (Nyantakyi-Frimpong and Bezner-Kerr, 2015).

The majority of the population in the study districts are of Dagaaba ethnicity, with a minority identifying as Sissala. Customary power resides in a hierarchy of traditional chiefs and their councils, topped by

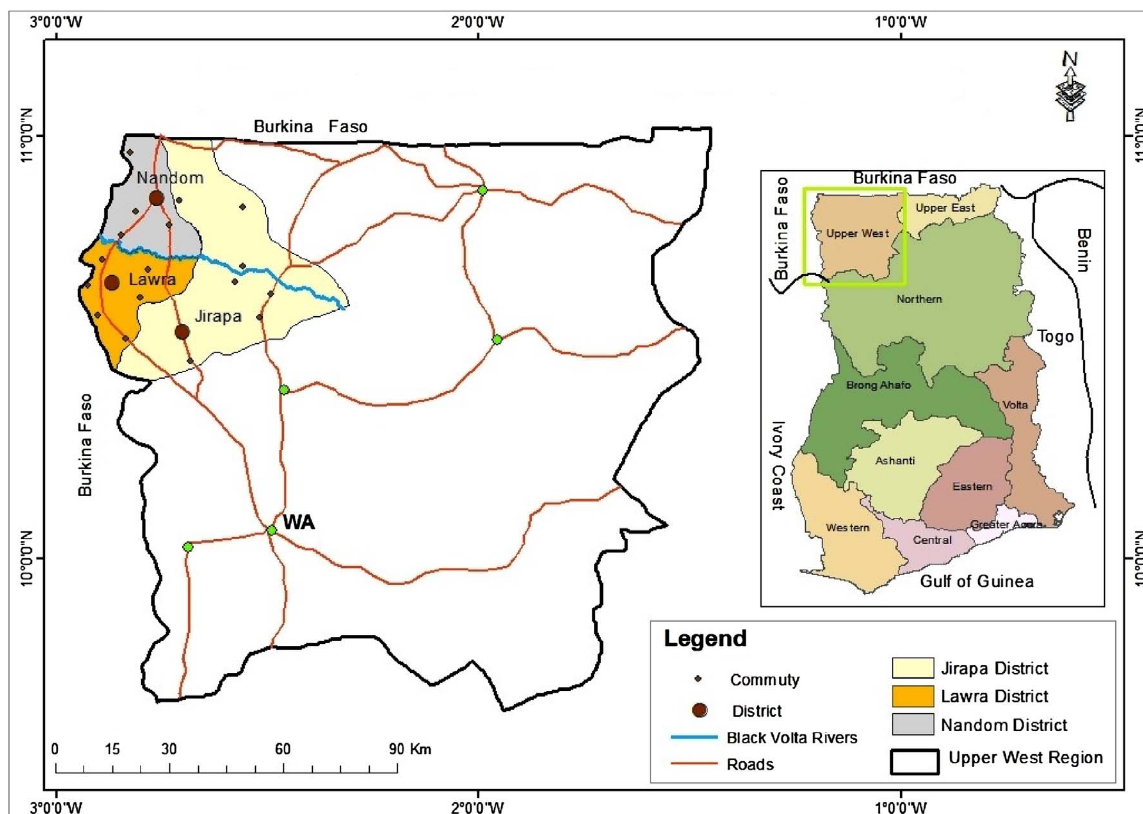

Fig. 2. Location of research sites.

the Paramount Chief (*Naa*), a structure solidified under the British colonial rule. By the early 1930 Lawra, Jirapa, Nandom (and neighbouring Lambussie) constituted four "native" chieftaincies grouped into the Lawra Confederacy (Lentz, 2000). In the effort to foster national unity and modernization, the first independent government under Kwame Nkrumah (1957–1966), sought to shift power away from chiefs barring them from participation in local governance. Populations from the northern regions and their chiefs opposed the Nkrumah government through Northern People's Party (NPP), which eventually morphed into the New Patriotic Party (retaining the same acronym). Subsequent regimes issued formal recognition to traditional chieftaincies (Ayee, 2003) while educated members from chiefly families moved into higher levels of administrative and political positions (Lentz, 2000). The liberalization and decentralization reforms of the 1990s opened spaces for greater participation of chiefs in development and governance (Ubink, 2007). The Growth and Poverty Reduction strategy (2006–2009) − launched by a NPP majority government − recognized chiefs as key development actors and a Ministry of Chieftaincy and Culture was created to support their roles. Nowadays traditional chiefs retain official responsibilities, such as mediating local level conflicts, enforcing bylaws, presiding over cultural events, and representing the community vis-à-vis outsiders and the state (Lentz, 2000).

While the districts share similar agro-ecological, demographic, and sociocultural characteristics, they have distinct historical and institutional features. Lawra has been an important administrative centre for nearly a century, hosting the British District Commissioner during colonial times. Likewise, Jirapa has the oldest Catholic Church in the Upper West Region, established in the early 1930 (Koya, 2010). Currently about half of the population in the districts in question self-identifies as Catholic (Koya, 2010). Because of the long history of church-sponsored education, many prominent Ghanaian professionals and politicians hail from local towns, including Jirapa and Lawra. In the late 1980s Ghana embarked on a process of political and administrative decentralization, with the creation of non-partisan District Assemblies, as the main governance, budgeting, and planning units (Amankwah et al., 2014). They are mostly composed of elected representatives, with one third being appointed by the government in consultation with traditional authorities. In addition to elected members, the District Assembly has staff − including officers in charge of Environment, Disaster Assistance, and Gender − who are civil servants. They are under the authority of a District Chief Executive appointed by the government (Debrah, 2016). Lawra was among the original 110 districts created in 1988 while Jirapa and Nandom were formed respectively in 2007 and 2012. The establishment of Nandom district was highly contested due to land and boundary disputes, conflicting chieftaincy claims, and political and ethnic tensions (Lentz, 2006). Due to its recent creation, Nandom has fewer modern facilities and paved roads than the other two districts.

Decentralized planning processes are to ensure the implementation of national policy prescriptions, such as the National Climate Change Policy (NCCP) adopted in 2014. However, incomplete transfer of power and resources, weak technical capacity and information access, and low levels of citizen involvement that characterize decentralization in Ghana (and in other African countries) make it difficult to do so (Ayee, 2003). Neoliberal policies, embraced by the country in the last 25 years, have shrunk budget and staffing of ministries in charge of agriculture, food systems, and natural resources, eroding their ability to support smallholder farmers. Given the limited capacity and resources available to decentralized government departments, particularly in northern Ghana, NGOs have stepped in to lead climate change initiatives. This situation that has resulted in low levels of coordination and continuity, lack of downward accountability, and over-emphasis on external actors' and funding agencies' priorities in the implementation of climate change responses (Sova, 2016).

3.2. Methodology

This article draws upon semi-structured interviews carried out in the course of two fieldwork periods of one week each respectively in August and November 2015. The authors' long-term involvement with the CCAFS program enabled participant observation during events, informal interactions with stakeholders, and analysis of project documents to triangulate and contextualize the findings. Phone interviews with two platform leaders in each district were conducted in October 2016 to update and clarify information. Participant recruitment combined purposive and convenience sampling to maximize variation in social positioning and to capitalize on individuals' ability and willingness to participate. A first reconnaissance visit yielded 32 interviews (9 in Jirapa; 12 in Lawra and 11 at Nandom) with government officials, development practitioners, traditional authorities, civil servants, and community members. Interviewed elicited perceptions of climate change and of the effectiveness of climate change interventions, which platforms are supposed to coordinate.

A second fieldwork period focused on platform development and operations and involved 30 individuals (10 in each district), representing more than half of platform membership. Since this article focuses on understanding platform dynamics, we draw mostly from this second set of interviews (Table 1). One third (33.4%) of participants were platform leaders, while the rest (66.6%) were regular members. Almost all respondents were from the Upper West Region. Almost half (46.7%) of them attended secondary school, and another third (36.7%) had post-secondary education. Government officers constituted the most numerous group (40%), while one fifth (20%) were traditional leaders. Other respondents were private sector and civil society representatives, including NGO personnel and leaders of producer associations. In the three locations, most (86.7%) respondents were men, who constituted the majority of platform members. Nonetheless, particular efforts were directed to interview the few female platform members and to gain their perspectives.

Most interviews were conducted in English − which is commonly spoken by literate Ghanaians − and digitally recorded with permission of the interviewees. The recordings were transcribed and the transcriptions cross-checked for consistency and completion by the first and second authors. Transcribed responses were thematically analysed and coded based on interview questions and variables of interest to enable

Table 1
Socio-demographic characteristics of respondents (n = 30).

Parameters		Jirapa (n = 10)	Lawra (n = 10)	Nandom (n = 10)
Position in platform	Member	6	6	8
	Leader	4	4	2
Function	Traditional authority	1	4	1
	Government agency	3	2	2
	District Assembly	2	1	2
	Civil society/NGO	3	2	4
	Farmer representative	1	1	1
Age	Under 30	0	0	2
	31–50	6	5	5
	Over 51	4	5	3
Sex	Male	9	9	8
	Female	1	1	2
Education	No school	2	0	0
	Primary	0	0	3
	Secondary	3	6	5
	Post-secondary	5	4	2
Origin	Upper West Region	9	9	9
	Elsewhere in Ghana	1	1	1

some quantification of the findings.

4. Research results

In this section we examine key stages in the operationalization of innovation platforms: platform formation and composition, selection of facilitating agents, and member's visioning and agenda setting. The analysis draws from both mainstream and critical institutionalist approaches to elucidate how structure and agency interacted in influencing programmatic outcomes. This process was expressed in intentional decisions concerning leadership and agendas as well as in power dynamics and cultural biases which determined who was given voice and how issues were framed in addressing vulnerabilities to climate change in each district.

4.1. Platform formation and composition

To promote stakeholder engagement in research and outreach, CCAFS adopted a multi-scalar approach centered on the creation of science-policy dialogue platforms at national and sub-national (district) levels in the program's West African sites (Ghana, Mali, and Senegal). The national platforms are composed of high-level officials and actors and are charged with integrating climate change adaptation into agriculture and food security policies. In Ghana, formation of the national platform was spearheaded by a member of the National Climate Change Council who had been involved in developing the National Climate Change Policy (NCCP). Hosted by the Council for Scientific and Industrial Research (CSIR) and chaired by a prominent scientist with close ties to Lawra district, the Ghana national platform is composed of about 60 members from relevant ministries, research institutes, private sector, and producer groups. It was launched on July 2013, with the mandate of supporting the integration of science and policy solutions towards climate-resilient agriculture and food systems (Essegbey et al., 2015).

District platforms have a more operational role – that is to coordinate climate-related interventions and to ensure their consistency with local priorities (Vermeulen et al., 2012). Target districts were selected by the national platform based on key vulnerability parameters and established relationships. A scoping visit was conducted by national platform members to meet with relevant actors in the regional capital and in the target districts. In each district the team identified a "champion" to manage the platform formation process, including two NGO leaders in Jirapa and Lawra and a District Assembly officer in Nandom. A constitutive meeting was held in each district in November 2014, attended by 52 stakeholders in Jirapa, 76 in Nandom, and 99 in Lawra. These participants nominated their representatives to the platform and voted for an organization to take on the facilitating role.

The resulting platforms exhibited significant variation across districts. One could expect that platform composition would reflect the structure of its constitutive group (Fig. 3), but that only the case for Lawra (Fig. 4). Though the Traditional Council was chosen to facilitate the platform, the majority of members were civil servants from agencies responsible for local administration, agricultural extension, community development, disaster assistance, fire management, and forestry. On the other hand in Jirapa and Nandom representation was skewed in favour of the facilitating agent's group, specifically government agencies dominated in Jirapa and NGOs in Nandom. This bias was explained in terms of needing dependable, accountable members that platform leaders could rely upon to carry out the work.

Platform composition exhibited notable gaps in stakeholder representation. None of the platforms included private sector actors involved in supporting agricultural development (rural banks, agrobusinesses, input providers). This is consistent with findings from a power analysis conducted by CCAFS in Lawra district which found that these actors were not perceived as being influential in climate change adaptation (Sova et al., 2016). The same study found that farmers were recognized as very important – due to their repertoire of traditional knowledge (Sova et al., 2016), but farmers were not strongly represented in the district platforms. Rather, several platform members affiliated with NGOs were counted as "farmers", particularly in Nandom. Women were also sidelined, particularly in Lawra and Jirapa, where platforms only included one or two female members (Nandom had five). Typically, women elected to the platform were not mere farmers but persons that occupied positions of authority in traditional society or in government agencies – such as the Queen Mothers in Nandom and Lawra and the Gender Officers for the Ministry of Food and Agriculture and the District Assembly in Jirapa.

In sum, from the standpoint of mainstream institutionalism, we see platforms emerging from a programmatic commitment to include a plurality of actors and to balance an externally-driven initiative with a bottom-up process of platform formation and recognition of local leadership. A critical institutionalist approach highlights how these efforts articulated with the historical and institutional specificities of each district, which led to certain stakeholder groups having greater representation than others. A similar fusion of programmatic planning and contextual determinants informed the choice of facilitating agents, as elaborated in the next section.

4.2. Selection of facilitating agent

The design of the district platform envisioned the selection of a facilitator responsible for convening meetings, defining agendas, coordinating activities, managing the budget, ensuring communication among members, and reporting to the national platform and CCAFS (Table 2). During the constitutive meeting, participants identified and voted for the most suitable entity to play such role for their district.

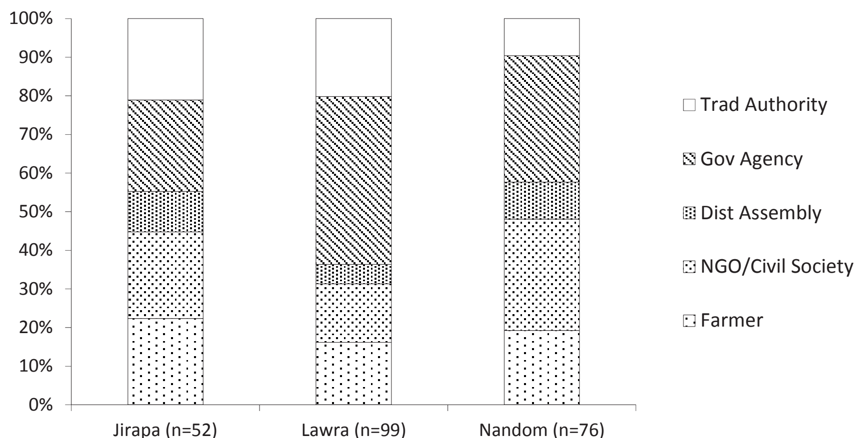

Fig. 3. Constitutive meeting participants in study districts.

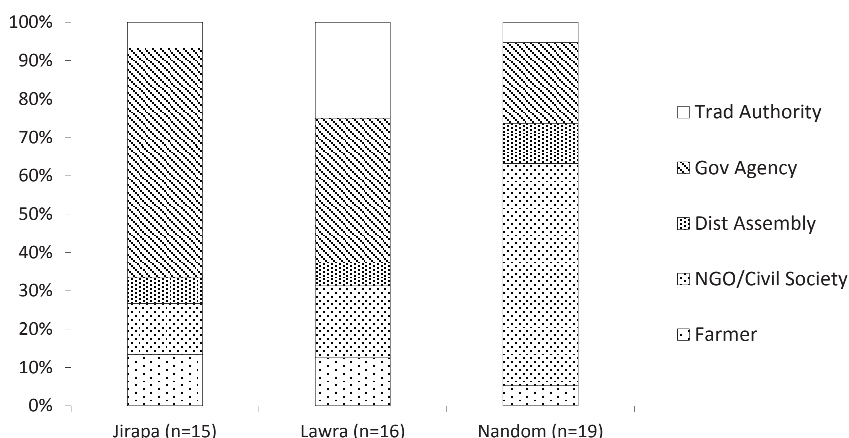

Fig. 4. Platform composition in study districts.

Interestingly, the entity selected to facilitate the platform was different from the one that the "champion" who spearheaded the process belonged to. In Nandom the champion worked for the District Assembly, but participants voted for an NGO; in Jirapa and Lawra champions were affiliated with NGOs, but participants selected the Ministry of Food and Agriculture (MoFA) and the Traditional Council. The fact that a different entity was selected to serve as facilitating agent in each district offers an opportunity for cross-site comparison, as also recognized by a participant: "*Our regional director sent a challenge to us. He said, in Jirapa the agricultural service is hosting the platform, in Lawra it is the traditional leaders and in Nandom an NGO, so let us see who will perform well.*" (J2, 6 August 2015). Fig. 5 illustrates the distribution of factors evoked by respondents in justifying their selection. These narratives provide insights into the social construction of legitimacy and authority.

In Jirapa, participants in the constitutive meetings discussed various options, including NGOs and the District Assembly, but settled on the MoFA Department of Agricultural Extension, because of its organizational and outreach capacity. Jirapa respondents stressed that agricultural extension agents have been working since the late 1980s with projects aimed to improve productivity through the promotion of fertilizer or high yield varieties. Participants also pointed to the availability of office space and equipment at the MoFA district headquarters, as illustrated by the following quotes:

> *"MoFA is everywhere in Jirapa with staffs in all the communities. As we have such a structure already in place, we found out that's easier to pass the platform through MoFA, so then we can easily reach the people and disseminate our ideas."* (J8, 15 November 2015).

> *"MoFA was chosen because it has a long-term presence in all communities; MoFA has technical staffs to do the job. At the MoFA's office, there is a working space where the members can meet and discuss the issues at hands. The staff has also experience with other climate change projects in the district"* (J5, 15 November 2015)

As mentioned by the participant quoted above, in Jirapa MoFA collaborates with several external projects on research activities, technology dissemination, and capacity building in directed to farming communities. For example, they manage field trials and demonstration plots on climate-smart agriculture in the CCAFS pilot village of Doggoh. In fact, in a participatory appraisal conducted in Doggoh, MoFA was ranked first by men and third by women in terms of its importance among 22 organizations operating in the village (Onyango et al., 2012), a result that is in line with other studies in northern Ghana (Yaro et al., 2015). Along similar lines, a stakeholder analysis involving actor groups at national, regional, and district (Lawra) levels identified MoFA as the most influential actor in climate policy because of its expertise and network of extension agents supporting farmers with technological innovation (Sova et al., 2016). These judgments, however, may be conditioned by the fact that, in those areas, MoFA participates in foreign-funded initiatives that complement its typically limited budget and resources.

MoFA was considered for the role of facilitating agent in Lawra, but after some deliberation, participants opted for the Traditional Council. This choice did not disregard technical expertise, since the Paramount Chief of Lawra is a retired professional who served in a national planning commission and belongs to a prominent family involved in civil service, education, and research. Most participants, however, explained their choice in terms of the authority chiefs have over natural resources and among rural communities, as illustrated by the quote below.

> "*When the chief will set rules against bush burning and trees cutting, people will follow, but if I, as a project officer, go to a community and tell them not to burn the bushes, they will certainly ask me who I am to make this recommendation… and whether the bush is my property. That's the reality here. And that's why we made the choice of the Traditional Council to lead our platform. … In the past, we used the District Assembly to set up bylaws on trees cutting and bush burning in the district, but people did not follow and even though the bylaws existed, the*

Table 2
Characteristics of facilitating agents.

	Jirapa	Lawra	Nandom
Facilitating agent	*Department of Agricultural Extension, Ministry of Food and Agriculture (MoFA)*	*Traditional Council*	*Nandom Deanery Rural Integrated Development Project (NANDIRDEP)*
Type	Government agency	Traditional (customary) authority	Non-governmental organization
Origin	District MoFA office established when Jirapa district was created in 1988	Established by British colonial administration as part of Indirect Rule structure in early 1930s	Created by the Catholic Church dioceses in 1973
Sources of funding for general activities	Government budget allocated to district MoFA	District Assembly provides some resources, though most revenue come from fees and contributions	Government budget, District Assembly, foreign donors (CARE, Oxfam UK)
Mandate	Coordinating, implementing climate-related projects and activities	Enacting and enforcing bylaws, mediating interaction between community and government, NGOs, and outside entities	Promoting improved crop and livestock production, income-generation, gender empowerment, environmental protection
Coverage	Jirapa district	Lawra district	Lawra and Nandom districts

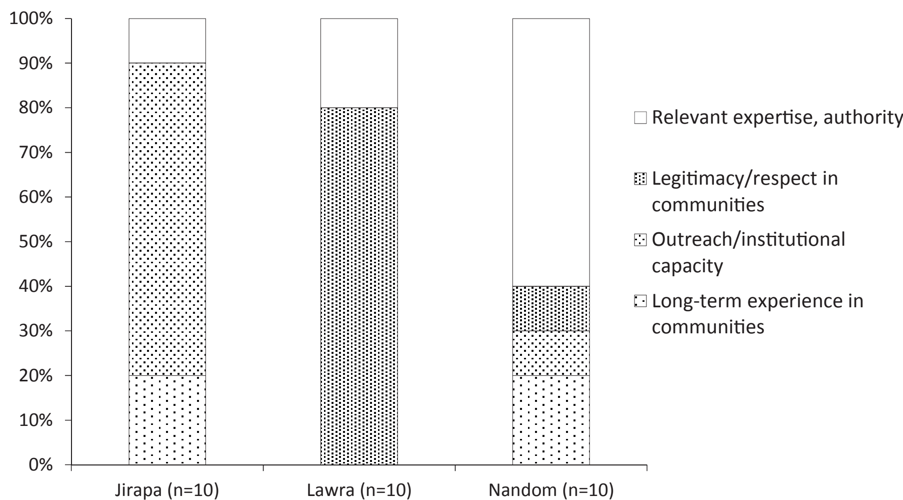

Fig. 5. Key criteria for selection mentioned by participants.

community members were still cutting the trees and burning the bushes. We learned from our past experience and now we agreed to put the platform in the hands of traditional authorities…" (L1; 14 November 2015).

Lawra respondents also attributed the Traditional Council's legitimacy to its official political neutrality. One participant elaborated on how political interference could undermine the platform's efforts by explaining that, if someone is arrested for violating bylaws, a local politician may arrange for his/her release as a way of securing local votes (L4, 7 August 2015). However, while the law prohibits chiefs from participation in politics, in practice some of them play active roles by directing their subjects to support certain parties (Lentz, 2006). For example, the Lawra Paramount Chief's family has a long history of political involvement, spanning from leadership in the independence-era NPP to the recent parliamentary elections in which a close relative ran as the NPP candidate for the Lawra-Nandom constituency. A family member served for several years as the government-appointed District Chief Executive (DCE) during years when the NPP was in power.

With regard to NGOs, Lawra residents were sceptical about their suitability to lead the platform, due to their lack of accountability, which allows NGO staff to profit from the platform's access to foreign funding, as argued by one participant:

"For example, sacred groves …if you cut there you must pay a penalty… if it is the government that tries to pass bylaws, nobody listens to you… or if it is an NGO, just a group of people doing nobody will listen to you, they will say these are just people getting benefit for themselves, they will not be moving with you…. But here we stress the traditional aspect, and you can see that trees are growing by themselves … dawadawa and sheanut tree, they are left alone so they can benefit the community…. (L4; 7 August 2015).

Nonetheless, Nandom participants selected an NGO to facilitate their platform. Neither traditional authorities (possibly in light of historical conflicts surrounding the Nandom chieftaincy) nor MoFA (which has yet to establish its district offices in the newly created district) were even considered as potential facilitating agents for their platform. The Nandom Deanary Rural Integrated Development Project (NANDIRDEP) was created in 1973 by the Catholic Church to promote community development in the diocese. It currently provides agricultural extension and implements projects addressing climate change, with support of external partners, such as OXFAM UK and CARE. More than half of the Nandom respondents justified their selection of NANDIRDEP (in ways that echo those of Jirapa participants for their choice of MoFA) by pointing to its technical capacity, its long-term experience, and the trust they gained among farmers. The common perception of NGOs as being more technically competent and better equipped than government services, coupled with the national-level tendency to frame climate change as a complex issue requiring expert input (Sova et al., 2016), led Nandom participants to elect NANDIRDEP. The following quotes characterize this reasoning:

'NANDIRDEP has expertise in agriculture and climate change, the fields that the platform is also targeting and the staff have a long work experience in the district. Based on that, we agreed that NANDIRDEP is the best structure to host our platform' (N8; 12 November 2015).

"*NANDIRDEP is the oldest NGO that we have in the district. In all the corners of Nandom, people know about NANDIRDEP. Moreover, as the NGO was doing similar actions as the ones the platform targets, we assessed that would be better to leave them doing it … (N1; 12 November 2015).*

Both in Nandom and Jirapa, participants discussed the suitability of the District Assembly as facilitating agent. While respondents considered the District Assembly to be an important actor, they expressed concern that its performance may be limited by budgetary constraints. A Jirapa participant commented '*If you go there they will tell you… We do not have fund, there is no money*'. Another respondent explained that – despite the democratizing vision behind decentralization – the District Assembly is seen as part of the state apparatus, so that it would be difficult for them to mobilize support for platform-led activities in rural communities. Studies of decentralization in the region validate this view, pointing to the limited engagement of rural populations by District Assemblies (Der Bebelleh and Nobabumah, 2013). Downward accountability is also limited by the fact that disbursement of funding for their operations are controlled by the government-appointed District Chief Executives, which means that central government agendas or political party manifesto may take precedence over local priorities (Sova et al., 2016).

Though different entities were chosen to facilitate the platform in each district, in practice boundaries around them are porous, as multiple ties based on family, ethnicity, education, profession, religion, or politics link individuals across organizations. In northern Ghana, these linkages have been fostered by the British administration's policy of enrolling children of chiefly lineages into colonial schools. As adults, they have become deeply engaged in civil society and political life and connected to elites at local, regional, and national levels (Lentz, 2006). In addition, dearth of opportunities for professional employment in the North has resulted in a "revolving door", whereby qualified personnel move back and forth among government agencies, development projects, and District Assemblies (Sova, 2016). These experiences and relationships constitute a network of social capital and shared interests that plays out in multi-stakeholder planning and decision-making.

This section discusses the process and reasons for selecting certain

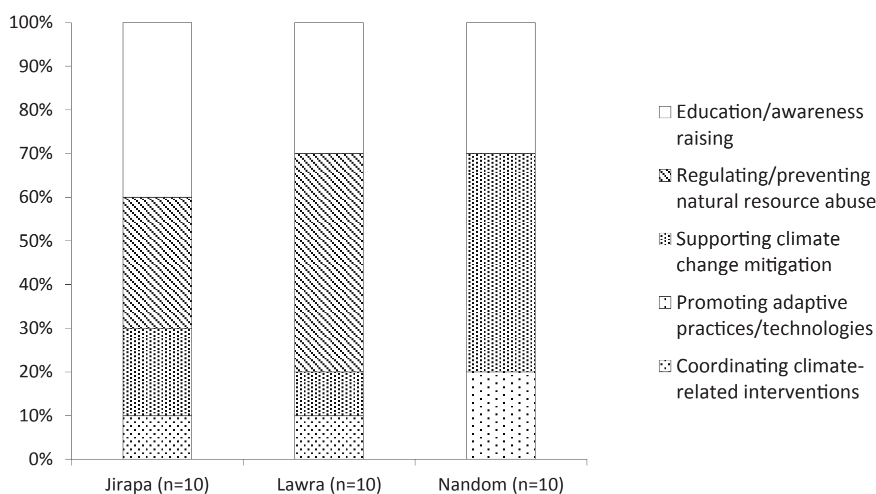

Fig. 6. Members' vision for platform role.

facilitating agents in each of the districts touching on issues of interest for both mainstream and critical institutionalism. In terms of mainstream institutionalism, they include the explicit evaluation of distinct properties, such as infrastructure, resources, capacities, and authority that are instrumental for platforms to fulfil their envisioned roles. From a critical institutionalist perspective, on the other hand, we show how the assessment of different options is influenced by ambiguities and tensions surrounding traditional and modern forms of governance. The next section elucidates how the interaction of these organizational choices and contextual influences contributed to shaping platforms' agendas.

4.3. Visioning and agenda setting

The choice of facilitating agents was informed by members' ideas about what the platform was supposed to accomplish. Given that platforms were set up in the context of a research program and were numerically dominated by government officials and development agents, it is not surprising that respondents discussed their mandate largely in technical and managerial terms (Fig. 6). One third of respondents (33%) – with no significant variation across districts – mentioned awareness raising and community education about the human drivers of climate changes as the main role of the platform. Over one fourth (27%) of study participants – especially those from NGO-led Nandom platform – emphasized climate mitigation measures (e.g. tree planting) and adaptation technologies (e.g. soil and water conservation). A similar proportion (27%) prioritized the setting and enforcing of by-laws to protect natural resources. This was especially the case in Jirapa and Lawra where platforms are respectively led by MoFA and the Traditional Council.

Only two participants mentioned coordination and creation of synergies among climate change interventions as the platforms' main function. None of them cited the integration of local priorities into national policy, which was the original motivation behind the establishment of sub-national platforms. Rather, most interviewees considered the platform to be directly responsible for implementing activities, such as awareness campaigns, technology transfer, and bylaw enforcement. When asked how to improve platform performance, they emphasized the need for funding to support travel to villages and execution of activities. One Lawra participant asked the research team for a camera to collect visual evidence of bylaw violations. This implementation bias may be due to a number of factors. The limited timeframe between workplan formulation and farming season may have induced platform facilitators to fall back on activities they had already planned rather than designing new ones. In addition, in a setting characterized by lack of development funding, platform leaders might have been reluctant to divert time and resources away from on-the-ground activities. Donors' emphasis on measurable accomplishments – as opposed to the less tangible outcomes of communication and coordination – may have equally reinforced the platforms' focus on implementation.

In each district, the platform agenda was determined through a process of workplan development (Fig. 7) led by the facilitating agent, which started in early 2015 (Table 3). While following the same process, district platforms differed in terms of how agendas were developed. In Jirapa, participants viewed that MoFA as best suited to take the lead because of its official functions and technical expertise, but MoFA also consulted the local chiefs, recognizing their authority over natural resource management. In Lawra district, on the other hand, leadership was centralized in the Traditional Council. Since people would customarily refrain from disagreeing with the Paramount Chief out of respect, the agenda was largely decided by him and his advisors. This contrasted with much broader consultation that occurred in Nandom, where the NGO facilitating the platform is well versed in participatory development and accustomed to collaborating with other stakeholders. Nandom was also the only site where farmers had some input into the platform agenda. The latter included community woodland plots, which farmers had experimented with and benefited from in the context of another project.

Platform activities are mostly supported by CCAFS, with other external projects providing additional funding for select activities. In Jirapa and Nandom the District Assembly also contributes a limited amount of resources. One of the first interventions was a joint scenario visioning workshop – held in Wa in June 2015 and attended by a wide range of stakeholders from the districts (Botchway et al., 2015). The workshop was intended to catalyse a dialogue among community members, development agents, policy makers, and researchers and to establish consensual visions on development pathways for each district. Another cross-district activity, inspired by the widespread emphasis on awareness raising, was focused on the National Climate Change Policy (NCCP) adopted by the country in July 2014. A CCAFS study had indicated that few people in the target districts were aware of such policy, including those charged with its implementation, such as traditional authorities, District Assembly members, and fire and forest service officers (Totin et al., 2015). To increase understanding with and cooperation with the NCCP, its main provisions relative to agriculture and food security were distilled into simple messages in the local language (Dagaari) and broadcasted by local radios, which had been identified as a key channel for information dissemination in rural communities (Onyango et al., 2012).

Beyond these initial efforts, each platform's portfolio of activities diverged in significant ways. In Jirapa the platform focused on capacity building directed to farmers, leaders, and volunteers. Having been involved in on-farm trials in the CCAFS site of Doggoh, MoFA used the

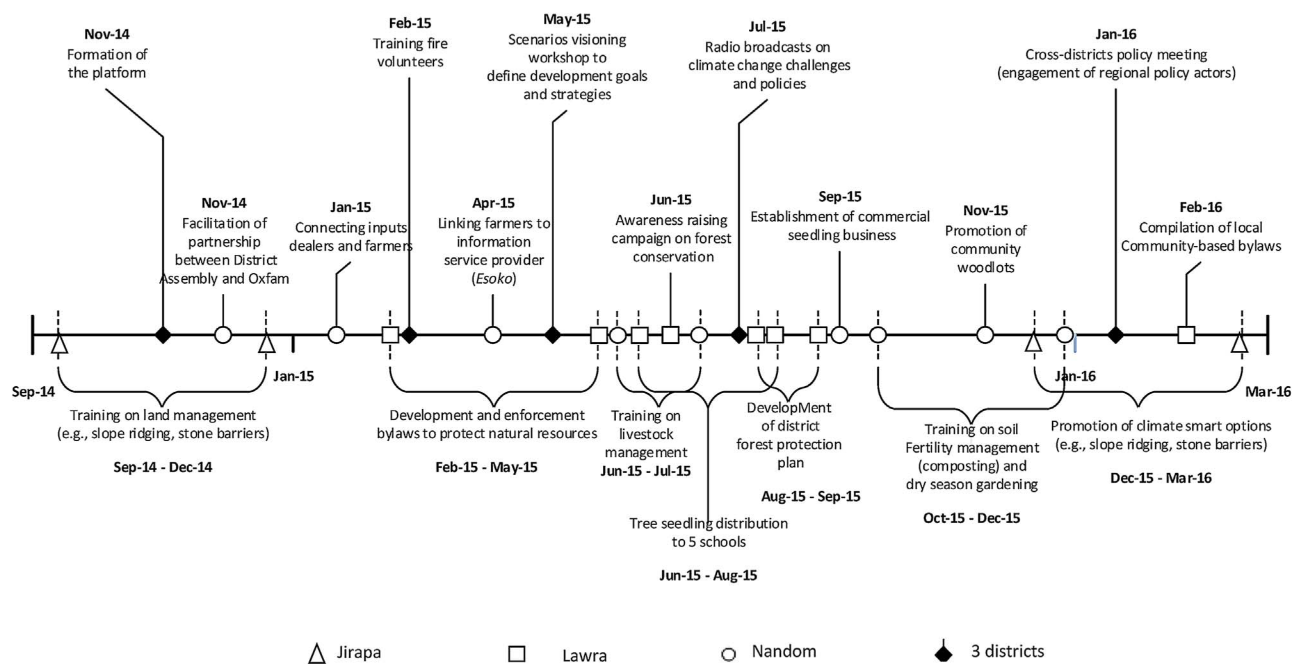

Fig. 7. Timeline of platform activities.

platform to scale out soil management practices, such as slope ridging and stone barriers. The platform also promoted preservation of natural woodlands and provided tree seedlings and technical advice to establish school wood plots. In all, 2000 trees were planted around 5 schools, and 42 youths trained as wildfire control and rescue volunteers. The Lawra workplan, on the other hand, was more focused on environmental protection, aimed to reduce deforestation rates. This thrust reflects the belief, voiced by several platform members interviewed, that climate change is a manifestation of the spirits' anger over the clearing of sacred groves, where they are believed to reside. It is also consistent with local environmental understandings that trees create favourable conditions for rainfall by lowering temperatures, concentrating humidity, and slowing down winds (Sova, 2016). Planned activities mainly consisted of establishing and enforcing of bans on cutting trees of economic values, harvesting branches for fodder and fuelwood, bush burning, and encroachment into sacred groves. Traditional authorities and forest officers worked with 22 communities to generate awareness of forest conservation and draft bylaws banning human activity and settlement in protected forests. The platform also collaborated with the District Assembly on developing a district forest protection plan. Conversely, the NGO-led platform in Nandom relied on a more integrated approach, based on an understanding of climate vulnerability as a broader development issue. The Nandom workplan included trainings to improve compost production and application, a practice that was already part of farmers' management strategies (Nyantakyi-Frimpong and Bezner-Kerr, 2015), but needed adjusting to make it more feasible and effective. The NGO facilitated farmers' access to farm input dealers and to information services through *Esoko*, an internet platform that disseminates market price and climate forecasts. It also established community woodlots and a commercial tree seedling nursery and promoted dry season gardening to provide an alternative revenue source to replace charcoal production. In support of this initiative, NANDIRDEP facilitated a collaboration between their international partner (Oxfam UK) and the District Assembly, convincing the latter to fund to purchase motor pumps to

Table 3
Platform activities according to platform members' vision.

	Jirapa	Lawra	Nandom
Education and awareness raising	Scenarios visioning workshop to define development goals and strategies Radio broadcasts on climate change challenges and policies	Scenarios visioning workshop to define development goals and strategies Radio broadcasts on climate change challenges and policies Awareness raising campaign on forest conservation	Scenarios visioning workshop to define development goals and strategies Radio broadcasts on climate change challenges and policies
Regulating and preventing natural resources abuses	Training 42 fire volunteers	Developing and enforcing bylaws to protect natural resources Developing district forest protection plan Training 15 fire volunteers	Training for 40 fire volunteers
Supporting climate change mitigation	Tree seedling distribution to 5 schools		Supporting establishment of commercial seedling business Promoting community woodlots
Promoting adaptive practices and technologies	Training on land management (e.g., slope ridging, stone barriers)		Training on soil fertility management (composting) and dry season gardening Training on livestock management Connecting inputs dealers and farmers
Coordinating climate change interventions			Linking farmers to information service provider (*Esoko*) Facilitating partnership between District Assembly and Oxfam

irrigate dry season gardens.

The different workplan configurations translated into distinctive modalities for engaging women. For example, in Lawra the emphasis has been on controlling and disciplining women for their alleged role in tree cutting and bush burning (the latter was seen as the result of women carelessly scattering smouldering embers from cooking stoves into the bush). Women interviewed for this study rebutted that they have no choice but to use firewood for cooking fuel, since they lack money to buy gas or kerosene. While admitting to selling firewood, they explained that it is the only income-generation option available to women and qualified that male charcoal traders are responsible for tree cutting at much larger scale. The Jirapa platform, on the other hand, has mostly involved women in their role as smallholder farmers, while in Nandom, they have focused on generating revenue through women's saving and loans groups. Challenging cultural norms that prohibit women from owning livestock, it supports goat rearing projects, which allow women to earn money to pay for healthcare and school fees for their children. These interventions were widely regarded as the most beneficial and successful ones, not only by women, but also by some of the men, as one of them stated:

> *Here the custom was that women did not own animals, and now they do because they were given the chance…. other communities are stuck in the old days …. So now if I have a problem and cannot solve, the woman can sell their goat and solve the problem… before there was fights husband and wife, but they changed our life… …, now women are on top of the men, this is good, because we cheated them for a long time! Before if there is a meeting, women were not allowed to speak, but all these things have changed now,… when it comes to select the executive, they will select a woman to be the chairperson or treasurer…they will never select a man as treasurer…!* (N1, August 2015).

An evaluation of platform outcomes is premature, given that their relatively short implementation history. Nonetheless, respondents shared their views about changes in their environment, which they observed and attributed to platform activities (Fig. 8). Many reported a decline in bush burning, which they linked to the platform's awareness raising and regulatory activities, especially in Lawra and Jirapa where those activities were central to platform agendas. In contrast, Nandom participants reported more varied impacts from a more diversified portfolio of agricultural, environmental, and livelihood interventions. While these impressionistic responses cannot be taken at face-value as evidence of actual impacts, they are suggestive of how the choice of facilitating agent has implications for steering efforts towards certain outcomes.

As with previous stages in the operationalization of district platforms, the agenda setting process exhibits elements that are of interest to both mainstream and critical institutionalism. For instance, in the specific development and decentralization context of the Upper West Region, the platform's intended role of coordination among stakeholders and connection of policy priorities across scales was reoriented towards direct involvement in activity implementation. Likewise, the process of workplan formulation in each district illustrates how programmatic intent interacts with organizational commitments and orientations about natural resources, community development, and gender relations.

5. Discussion

We focused on organizational entities that were introduced at the sub-national level to link national climate change policies with local priorities and practices. The comparative analysis in three neighbouring districts illuminates how institutional and contextual variation shapes the role facilitating agents play in multi-stakeholder platforms. It elucidates the confluence of agency and structure by showing how the programmatic design and vision – the typical focus of mainstream institutionalism – were partly reconfigured by participants' understandings and negotiations as well as by historical specificities and structural drivers that are of interest to critical institutionalism. This understanding expands the notion of "institutional embeddedness" (Schut et al., 2015) beyond the platform's programmatic impetus (e.g. creation by a research project) and organizational framework (e.g. facilitation by a select entity) to encompass the socially-constructed environment in which platform are introduced. In this perspective, it is no coincidence that a politically prominent chieftaincy in Lawra, a long established church-affiliated NGO in Nandom, and a government agency involved in externally funded projects emerged as platform leaders. These choices express configurations of authority and narratives of legitimacy that are rooted in colonial and post-colonial history and politics.

After decades of being side-lined from political life, traditional chiefs have gained new roles and leverage since decentralization (Kessel and Oomen, 1997). Even with District Assemblies serving as vehicles for electoral representation, chiefs continue to be regarded as legitimate spokespersons for local communities. Increasingly, they are also considered to be influential brokers who can deliver rural votes or, in certain circumstances, counterbalance the power of the state and the agenda of political parties (Sova, 2016). This recognition has strengthened the traditional elites, particularly where they also benefit from higher educational levels, professional networks, and political leverage, such as in Lawra. In that district, the Traditional Council not only arose as facilitating agent for the platform, but was also able to control the agenda setting, by capitalizing on the customary norms that

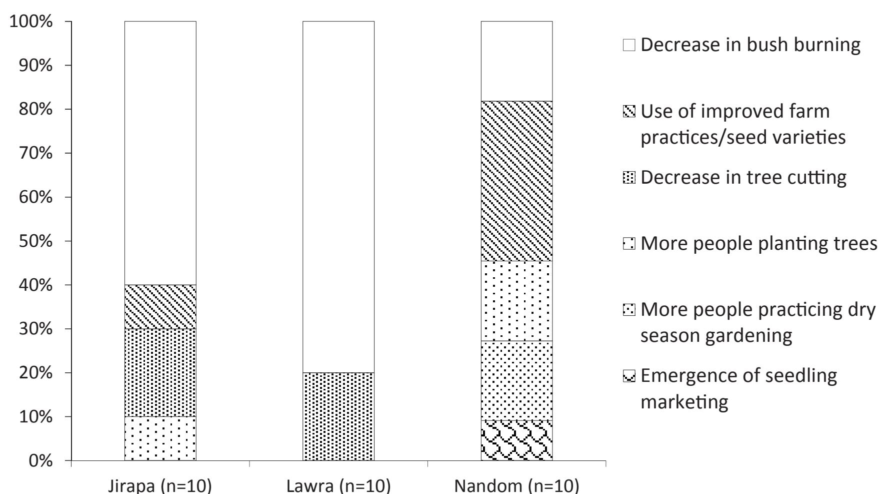

Fig. 8. Perceived impacts of platform activities.

inhibit public dissent with the chief's opinions and advice. Furthermore, neoliberal policies have simultaneously reduced the role of government vis-à-vis civil society, increasingly entrusting service delivery and development work to NGOs, assumed to be more competent, efficient, and transparent (Edwards and Hulme, 1995). Coupled with donors' emphasis on institutional sustainability and local empowerment, this new climate is encouraging local non-profits, such as NANDIRDEP, to exercise leadership in district-level decision-making. Consistently with their community development mission and embrace of participatory approaches, the NGO led the platform to adopt a diversified agenda consisting of interlinked activities that aim to improve community wellbeing. The same neoliberal policies have weakened the operational viability and outreach capacity of government-based agricultural extension services, magnifying the importance of external funding for MoFA, as it has occurred in Jirapa. Its selection as facilitating agent was partly due to MoFA's involvement in several projects aimed to enhance resilience and reduce vulnerability to climate impacts. The Jirapa workplan was in line with this programmatic experience and emphasis on expert-led approaches.

Techno-scientific knowledge features strongly among the sources of legitimacy whereby study participants rationalized their choice of facilitating agent. This is the case not only in Jirapa, where the platform is hosted by MoFA, but in Nandom as well, where the NGO facilitating the platform is also involved in foreign-funded climate-related projects. This reflects a pervasive trend in Ghanaian public discourse and policymaking that frames climate change as a highly complicated and poorly understood phenomenon that can only be addressed through science and technology (Sova, 2016). As Sova also stresses in relation to climate change policy in Ghana (Sova, 2016), this framing contributes to biasing platform agendas in favour of research-generated and/or NGO-introduced innovations over farmer-led adaptations, such as crop sequencing, biological pest control, tied and round ridging, and trash lines (Nyantakyi-Frimpong and Bezner-Kerr, 2015). Not surprisingly, smallholder farmers were underrepresented among platform members, especially in Jirapa and Lawra. More inclusivity and diversity in platform composition could have resulted in greater consideration to non-climatic stresses, which magnify climate vulnerabilities, particularly related to livelihood and health. Efforts to expand farmer engagement in platforms will call for more attention to the diversity of interests and identities that exist in farming communities, including women, pastoralists, recent immigrants, ethnic minorities, and other marginalized groups. Such inclusivity means going beyond token recognition of one or two "generic" (often, male) farmers who are familiar to project staff or extension workers or identified by the chief (Cullen et al., 2014). Numerical disparity and customary deference − as well as unfamiliar format, language, and venue for meetings − are likely to make those less powerful platform members hesitant to openly voice their views, particularly when they differ from those of technicians, officials, and chiefs. Recruiting respected leaders of farmer associations– rather than individuals − as platform members would ensure greater legitimacy and leverage, enabling them to be more effective voices for their communities.

Interwoven with the emphasis on technocratic approaches, a second dominant narrative in Ghanaian public discourse frames climate change as essentially an environmental issue, mostly due to deforestation. This view, coupled with foreign donors' inclination to disproportionally finance mitigation initiatives, biases the implementation of climate change policies towards protection and restoration of natural resources (Sova, 2016). Rural populations have interiorized this perspective, holding themselves responsible for climate change for their role in bush burning and tree cutting (Sova, 2016; Eguavoen, 2013). This attitude is in line with the spiritual explanations for climate change voiced by Lawra respondents, but also echoes colonial anxieties about desertification that led to restrictions on access to forests and forest products in northern Ghana (Wardell and Lund, 2006). The British policy of Indirect Rule enlisted chiefs to enforce the law and ensure social order, a role that is reproduced by the emphasis on by-laws as a way to address climate change. It is hardly fortuitous that such approach was prioritized by a platform led by a Traditional Council and operating in the seat of a historically powerful chieftaincy (Lawra), as it validates the chief' customary role as protector of the environment and of guarantor of the material and spiritual wellbeing of the community. However, it also legitimizes and perpetuates the marginalization of women and pastoralists, whose practices are disproportionally blamed for deforestation and whose interests do not always align with those of local powerholders – especially in relation to access to land and natural resources (Sova, 2016).

Achieving more locally responsive agenda setting will require a shift in perspective and collective discourse surrounding climate change. In particular, there is a need to move beyond a view of climate change as a sector-specific phenomenon attributable to a single cause − notably irresponsible, irrational practices like tree cutting and bush burning of local communities. Such view is not only inaccurate as it disregards global drivers of climate change, but it also detrimental, biasing policy and programmatic agendas towards mitigation, at the expense of efforts to bolster the resilience of local agricultural and food systems. Most importantly, it obfuscates the role of structural determinants − such as entrenched poverty, gender and social inequality, regional imbalances in development funding, and the interference of political agendas − in constituting differentiated vulnerabilities. Promoting more meaningful and inclusive community representation and establishing procedures that facilitate participation by women, pastoralists, and other disadvantaged groups is an essential pre-conditions for platforms to address climate change impacts as they are experienced on the ground. However, that is not enough, as the official discourses and vested interests embraced by facilitating agents can still sway platform operations and outcomes. Institutional diagnostics are critical to anticipating the potential effects that different organizations in facilitating roles may have on the platforms' ability to capture local people's agency and capitalize on their adaptations and innovations.

6. Conclusion

While our findings are provisional, given the small size and non-random nature of the sample and short time span the district platforms have been in existence, they support the hypothesis that − far from being neutral − organizations in facilitating roles exercise agency in defining platforms functions. They do so by activating legitimacy claims based on technical expertise, community engagement, or cultural tradition, and by articulating with scientific narratives and development discourses on climate change that prioritize either mitigation or adaptation. Even in a country that has thirty years of experience with decentralization, as Ghana has, the ability to influence policy agendas and collective actions is not just a function of proportional majority. Rather, it can be powerfully driven by forces as the hegemony of techno-scientific knowledge, the modus operandi of state bureaucracies, and the symbolic capital and historical weight of chieftaincy institutions. In other words, whether and how organizational agency is deployed and explained is rooted in structural conditions.

The insights that emerge from this study reinforce the growing consensus that efforts to catalyse positive change in agricultural and food systems through innovation platforms must pay attention to the variety of institutional contexts in which they are embedded (Sanyang et al., 2016; Hermans et al., 2017). This realization has methodological implications for institutional diagnostics, pointing to the need to balance the rigor provided by experimental and comparative studies with the depth enabled by ethnographic enquiry. As illustrated in this article, systematic observation, open-ended interviewing, and discourse analysis can unpack critical stages in the constitution and functioning of meso-level networks that connect global and national level dynamics with local decision-making. In particular, ethnography can elucidate the institutionally embedded strategies whereby organizations

facilitating multi-stakeholder platforms affect problem framing and agenda setting and the structurally-grounded claims that legitimize and reproduce their power to do so.

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References

Amankwah, K., Klerkx, L., Sakyi-Dawson, O., Karbo, N., Oosting, S.J., Leeuwis, C., van der Zijpp, A.J., 2014. Institutional dimensions of veterinary services reforms: responses to structural adjustment in Northern Ghana. Int. J. Agric. Sustainability 12, 296–315.
Amanor, K.S., 2011. From farmer participation to pro-poor seed markets: the political economy of commercial cereal seed networks in Ghana. IDS Bull. 42, 48–58.
Ayee, J.R., 2003. Local Government, Decentralization and State Capacity in Ghana Critical Perspectives on Politics and Socio-Economic Development in Ghana. pp. 45–81.
Botchway, V.A., Sam, K.O., Karbo, N., Nutsukpo, D., 2015. Participatory Scenarios Development Workshop Report. ICRISATpp. 32.
Campbell, B.M., Vermeulen, S.J., Aggarwal, P.K., Corner-Dolloff, C., Girvetz, E., Loboguerrero, A.M., Ramirez-Villegas, J., Rosenstock, T., Sebastian, L., Thornton, P., Wollenberg, E., 2016. Reducing risks to food security from climate change. Glob. Food Secur. 11, 34–43.
Chaudhury, A.S., Ventresca, M.J., Thornton, T.F., Helfgott, A., Sova, C., Baral, P., Rasheed, T., Ligthart, J., 2016. Emerging meta-organisations and adaptation to global climate change: evidence from implementing adaptation in Nepal, Pakistan and Ghana. Glob. Environ. Change 38, 243–257.
Connolly-Boutin, L., Smit, B., 2016. Climate change, food security, and livelihoods in sub-Saharan Africa. Reg. Environ. Change 16, 385–399.
Cullen, B., Tucker, J., Snyder, K., Lema, Z., Duncan, A., 2014. An analysis of power dynamics within innovation platforms for natural resource management. Innov. Dev. 4, 259–275.
Debrah, E., 2016. Decentralization, district chief executives, and district assemblies in Ghana's fourth republic. Polit. Policy 44, 135–164.
Der Bebelleh, F., Nobabumah, A.S., 2013. Political decentralization and local participation in Ghana: perspectives from the upper west region. Public Policy Admin. Res. 3, 12–26.
Dore, J., Lebel, L., 2010. Deliberation and scale in Mekong Region water governance. Environ. Manage. 46, 60–80.
Douxchamps, S., Van Wijk, M.T., Silvestri, S., Moussa, A.S., Quiros, C., Ndour, N.Y.B., Buah, S., Somé, L., Herrero, M., Kristjanson, P., 2016. Linking agricultural adaptation strategies, food security and vulnerability: evidence from West Africa. Reg. Environ. Change 16, 1305–1317.
Edwards, M., Hulme, D., 1995. NGO performance and accountability in the post-cold war world. J. Int. Dev. 7, 849–856.
Eguavoen, I., 2013. Climate change and trajectories of blame in Northern Ghana. Anthropol. Notebooks 19, 5–24.
Essegbey, G.O., Nutsukpo, D., Karbo, N., Zougmoré, R., 2015. National Climate-smart Agriculture and Food Security Action Plan of Ghana (2016–2020), Working Paper No. 139. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark (Available online at:). www.ccafs.cgiar.org.
Hall, K., Cleaver, F., Franks, T., Maganga, F., 2014. Capturing critical institutionalism: a synthesis of key themes and debates. Eur. J. Dev. Res. 26, 71–86.
Hermans, F., Sartas, M., van Schagen, B., van Asten, P., Schut, M., 2017. Social network analysis of multi-stakeholder platforms in agricultural research for development: opportunities and constraints for innovation and scaling. PLoS One 12, e0169634.
Holmes, B., 2011. Citizen's Engagement in Policymaking and the Design of Public Services. Parliament of Australia, Depertement of Parliamentary Servicespp. 62.
Howells, J., 2006. Intermediation and the role of intermediaries in innovation. Res. Policy 35, 715–728.
Jiggins, J., 2012. Diagnostic research in support of innovation. Njas-Wageningen J. Life Sci. 60–63, 115–121.
Kessel, V.I., Oomen, B., 1997. One chief, one vote: the revival of traditional authorities in post-apartheid South Africa. Afr. Aff. 96, 561–585.
Kilelu, C.W., Klerkx, L., Leeuwis, C., Hall, A., 2011. Beyond knowledge brokering: an exploratory study on innovation intermediaries in an evolving smallholder agricultural system in Kenya. Knowl. Manage. Dev. J. 7, 84–108.
Kilelu, C.W., Klerkx, L., Leeuwis, C., 2013. Unravelling the role of innovation platforms in supporting co-evolution of innovation: contributions and tensions in a smallholder dairy development programme. Agric. Syst. 118, 65–77.
Klerkx, L., Aarts, N., 2013. The interaction of multiple champions in orchestrating innovation networks: conflicts and complementarities. Technovation 33, 193–210.
Klerkx, L., Gildemacher, P., 2012. The role of innovation brokers in agricultural innovation systems, World Bank. Agricultural innovation systems: an investment sourcebook. Module 3, 221–230.
Klerkx, L., Leeuwis, C., 2009. Establishment and embedding of innovation brokers at different innovation system levels: insights from the Dutch agricultural sector. Technol. Forecast. Soc. 76, 849–860.
Klerkx, L., Adjei-Nsiah, S., Adu-Acheampong, R., Saïdou, A., Zannou, E.T., Soumano, L., Sakyi-Dawson, O., van Paassen, A., Nederlof, E.S., 2013. Looking at agricultural innovation platforms through an innovation champion lens: an analysis of three cases in West Africa. Outlook Agric. 42, 185–192.
Klerkx, L., Alvarez, R., Campusano, R., 2015. The emergence and functioning of innovation intermediaries in maturing innovation systems: the case of Chile. Innov. Dev. 5, 73–91.
Klerkx, L., Seuneke, P., de Wolf, P., Rossing, W.A.H., 2017. Replication and translation of co-innovation: the influence of institutional context in large international participatory research projects. Land Use Policy 61, 276–292.
Konadu-Agyemang, K., 2000. The best of times and the worst of times: structural adjustment programs and uneven development in Africa: the case of Ghana. Prof. Geogr. 52, 469–483.
Koya, S.A., 2010. The Role of the Catholic Church in Regional Development in Northern Ghana. The Case of the Diocese of Wa. Faculty of Spatial Planning, Technical University of Dortmund.
Kuuire, V.Z., Mkandawire, P., Luginaah, I., Arku, G., 2016. Abandoning land in search of farms: challenges of subsistence migrant farming in Ghana. Agric. Hum. Values 33, 475–488.
Lentz, C., 2000. Chieftaincy has come to stay la chefferie dans les sociétés acéphales du Nord-Ouest Ghana (Chieftaincy has come to stay: Chieftaincy in the Acephalous Societies of Northwestern Ghana), Cahiers d'études africaines. pp. 593–614.
Lentz, C., 2006. Ethnicity and the Making of History in Northern Ghana. Edinburgh University Press.
Luke, B., Verreynne, M.-L., Kearins, K., 2010. Innovative and entrepreneurial activity in the public sector: the changing face of public sector institutions. Innovation 12, 138–153.
Moomen, A.-W., Dewan, A., Corner, R., 2016. Landscape assessment for sustainable resettlement of potentially displaced communities in Ghana's emerging northwest gold province. J. Clean. Prod. 133, 701–711.
Nederlof, E.S., Pyburn, R., 2012. One Finger Cannot Lift a Rock: Facilitating Innovation Platforms to Trigger Institutional Change in West Africa. KIT Publisher, Amsterdam.
Niang, I., Ruppel, O.C., Abdrabo, M.A., Essel, C., Lennard, C., Padgham, J., Urquhart, P., Descheemaeker, K., 2014. Africa, Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment. Cambridge University Presspp. 1199–1265.
Nielsen, K., 2001. Institutionalist approaches in the social sciences: typology, dialogue, and future challenges. J. Econ. Issues 35, 505–516.
Nyantakyi-Frimpong, H., Bezner-Kerr, R., 2015. The relative importance of climate change in the context of multiple stressors in semi-arid Ghana. Glob. Environ. Change 32, 40–56.
Olowu, D., Wunsch, J.S., 2004. Local Governance in Africa: The Challenges of Democratic Decentralization. Lynne Rienner Publishers.
Onyango, L., Iddrisu, Y., Mango, J., Kurui, Z., Wamubeyi, B., Naab, B., 2012. Village Baseline Study: Site Analysis Report for Lawra–Jirapa, Ghana (GH0108). Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark.
Ostrom, E., 2009. Understanding Institutional Diversity. Princeton university press.
Pahl-Wostl, C., Hare, M., 2004. Processes of social learning in integrated resources management. J. Community Appl. Soc. Psychol. 14, 193–206.
Peterson, C.A., 2014. Local-Level Appraisal of Benefits and Barriers Affecting Adoption of Climate-Smart Agricultural Practices: Ghana. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark, pp. 37. Available at. www.ccafs.org.
Rademacher-Schulz, C., Schraven, B., Mahama, E.S., 2014. Time matters: shifting seasonal migration in Northern Ghana in response to rainfall variability and food insecurity. Clim. Dev. 6, 46–52.
Rodrik, D., 2010. Diagnostics before prescription. J. Econ. Perspect. 24, 33–44.
Roling, N., Hounkonnou, D., Kossou, D., Kuyper, T.W., Nederlof, S., Sakyi-Dawson, O., Traore, M., van Huis, A., 2012. Diagnosing the scope for innovation: linking smallholder practices and institutional context Introduction to the special issue. Njas-Wageningen J. Life Sci. 60–63, 1–6.
Roncoli, C., Dowd-Uribe, B., Orlove, B., West, C.T., Sanon, M., 2016. Who counts, what counts: representation and accountability in water governance in the Upper Comoé sub-basin, Burkina Faso. Nat. Resour. Forum n/a–n/a.
Sanyang, S., Taonda, S.J.-B., Kuiseu, J., Coulibaly, N.T., Konaté, L., 2016. A paradigm shift in African agricultural research for development: the role of innovation platforms. Int. J. Agric. Sustainability 14, 187–213.
Schut, M., Klerkx, L., Sartas, M., Lamers, D., Campbell, M.M., Ogbonna, I., Kaushik, P., Atta-Krah, K., Leeuwis, C., 2015. Innovation Platforms Experiences with their institutional embedding in agricultural research for development, Experimental Agriculture. FirstView 1–25.
Sherman, M.H., Ford, J., 2014. Stakeholder engagement in adaptation interventions: an evaluation of projects in developing nations. Clim. Policy 14, 417–441.
Sijmons, K., Kiplimo, J., Förch, W., Thornton, P., Moussa, A., Zougmoré, R., 2013. CCAFS Site Atlas–Lawra–Jirapa/Lawra. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark Available online at:

www.ccafs.cgiar.org.
Sova, C.A., Thornton, T.F., Zougmore, R., Helfgott, A., Chaudhury, A.S., 2016. Power and influence mapping in Ghana's agricultural adaptation policy regime. Clim. Dev. 1–16.
Sova, A.C., 2016. Decision Making, Agenda Setting, and Preference Shaping in Ghana's Agricultural Climate Change Adaptation Policy Regime: a Political Ecological Perspective. Environmental Change Institute, School of Geography and the Environment, Oxford University, Oxford UK.
Swaans, K., Cullen, B., van Rooyen, A., Adekunle, A., Ngwenya, H., Lema, Z., Nederlof, S., 2013. Dealing with critical challenges in African innovation platforms: lessons for facilitation. Knowl. Manage. Dev. J. 9, 116–135.
Thiele, G., Devaux, A., Reinoso, I., Pico, H., Montesdeoca, F., Pumisacho, M., Andrade-Piedra, J., Velasco, C., Flores, P., Esprella, R., Thomann, A., Manrique, K., Horton, D., 2011. Multi-stakeholder platforms for linking small farmers to value chains: evidence from the Andes. Int. J. Agric. Sustainability 9, 423–433.
Totin, E., Traoré, P.S., Zougmoré, R., Tabo, R., Schubert, C., 2015. Barriers to Effective Climate Change Policy Development and Implementation in West Africa. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Available at. www.ccafs.org.
Turner, J.A., Klerkx, L., Rijswijk, K., Williams, T., Barnard, T., 2016. Systemic problems affecting co-innovation in the New Zealand Agricultural Innovation System: identification of blocking mechanisms and underlying institutional logics. NJAS – Wageningen J. Life Sci. 76, 99–112.
Ubink, J., 2007. Traditional authority revisited: popular perceptions of chiefs and chieftaincy in peri-urban Kumasi Ghana. J. Legal Pluralism 55, 123–161.
Vermeulen, S., Zougmoré, R., Wollenberg, E., Thornton, P., Nelson, G., Kristjanson, P., Kinyangi, J., Jarvis, A., Hansen, J., Challinor, A., Campbell, B., Aggarwal, P., 2012. Climate change, agriculture and food security: a global partnership to link research and action for low-income agricultural producers and consumers. Curr. Opin. Environ. Sustain. 4, 128–133.
Wardell, D.A., Lund, C., 2006. Governing access to forests in northern Ghana: micro-politics and the rents of non-enforcement. World Dev. 34, 1887–1906.
Warner, J.F., 2006. More sustainable participation? Multi-stakeholder platforms for integrated catchment management. Water Resour. Dev. 22, 15–35.
Yahaya, A.-K., Amoah, S.T., 2013. Bushfires in the Nandom district of the Upper West Region of Ghana: perpetual threat to food crop production. J. Environ. Earth Sci. 3, 10–14.
Yaro, J.A., Teye, J., Bawakyillenuo, S., 2015. Local institutions and adaptive capacity to climate change/variability in the northern savannah of Ghana. Clim. Dev. 7, 235–245.
van Paassen, A., Klerkx, L., Adjei-Nsiah, S., Adu-Acheampong, R., Ouologuem, B., Zannou, E., Vissoh, P., Soumano, L., Dembele, F., Traore, M., 2013. Choice-making in facilitation of agricultural innovation platforms in different contexts in West Africa: experiences from Benin, Ghana and Mali. Knowl. Manage. Dev. J. 9, 79–94.