



How do stakeholder interactions influence national food security policy in the Caribbean? The case of Saint Lucia



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ABSTRACT

Increasingly, multi-stakeholder processes have been recognized as being necessary to the development of public policies seeking to promote systemic innovation in response to complex and multidimensional challenges, such as household food security, rural development, and environmental change. Saint Lucia, a small island developing state located in the Caribbean, has been grappling with a wide range of agriculture, food and nutrition security challenges with varying degrees of policy success. Recognizing the significance of the challenge, this paper explores the nature of the stakeholder interactions surrounding the development of Saint Lucia's 2009–2015 National Agricultural Policy and considers some of the implications for food and agriculture-related policy outcomes. Results reveal a general lack of supportive conditions for effective multi-stakeholder processes, including low stakeholder participation levels, conflicting roles of different forms of social capital in the interactions between stakeholders, and missing “boundary” organizations capable of facilitating a transition towards more flexible and adaptive institutions, enhanced knowledge exchange and learning, and greater trust among stakeholders in the policy network. Future avenues for research and development are subsequently identified.

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1. Introduction

Food and nutrition security presents a significant challenge for member states of the Caribbean Community (CARICOM), an economic grouping of fifteen former colonies of Europe (Lowitt et al., 2015a). Within CARICOM, the island nation of Saint Lucia offers a typical example of the food security policy challenges facing national governments in the region. Farms in Saint Lucia are generally less than two hectares in size, with rain-fed agricultural production dependent on seasonally distributed cyclonic rainfall (Cox et al., 2005). The historic dominance of sugar estates on flat flood zones has pushed smallholder farms into the sloped interior (Cox et al., 2005), with 87% of the farms located on slopes considered unsuitable for conventional agriculture (Rojas et al., 1988), resulting in high rates of soil erosion (Cox and Madramootoo, 1998). Farming in St. Lucia is also heavily exposed to frequent hurricanes (Poncelet, 1997; Michel-Kerjan et al., 2013).

Despite the many challenges facing the agri-food system in St. Lucia, national agricultural policies, initially structured under colo-

onial rule, have not significantly evolved since the country gained independence in 1979. Monocrop (banana) plantation agriculture for commodity export continues to dominate the national and regional agricultural psyche, with minimal policy attention being directed towards developing more locally-oriented food systems involving agricultural diversification and the reduction of farmer vulnerabilities to external shocks (Welch, 1994; Leys, 1996; Grossman, 1998; Klak et al., 2011; Barker, 2012). The general lack of domestic agricultural diversification, coupled with declining export markets for bananas grown in St. Lucia has raised important policy questions. Similarly, rising food imports and consumption of processed, energy dense foods (CARICOM, 2010) have contributed to increasing rates of obesity and non-communicable diseases (NCDs), such as diabetes and hypertension among the population of St. Lucia (World Bank, 2011; Samuels et al., 2012), raising further questions for government. There has subsequently been an increasing recognition by various stakeholders of the urgent need to realign domestic agriculture and food policy (CARICOM, 2007).

2. Background

The Caribbean Community (CARICOM) has struggled with devising regional policies in support of developing domestic food

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systems capable of improving the nutritional outcomes of its citizens, particularly in the context of promoting micronutrient-rich foods. As early as 1990, the Prime Minister of Antigua and Barbuda, in the feature address at the first sub-regional project hosted by the Organization of Eastern Caribbean States (OECS) Vegetable Development Projects (IICA, 1990), noted that it had taken an “extremely long time to focus on vegetables (p.42)”. In Saint Lucia, earlier policies aimed at increasing production and consumption of local fruits and vegetables proved unsuccessful (Singh et al., 2005) due to what can be best described as an export policy “rigidity trap” (Carpenter and Brock, 2008). Historically, agricultural policies and food system innovation supported export production that hindered domestic agriculture and favored the importation of cheaper processed foods (Saint Ville et al., 2015). While the word ‘trap’ suggests a situation of stasis, Carpenter and Brock (2008) defined a rigidity trap as a “persistent maladaptive (p. 40)” situation that occurs when the intensive management of a single dimension (often by rigid bureaucracies unable to integrate and respond to new information) of a social-ecological system results in extreme fluctuations in other dimensions. In the case of Saint Lucia, this situation can be seen through policies that often appear to pursue a “technological transformation” of the local agriculture-food system (Singh et al., 2005), and enhancement of structural efficiencies (IICA, 2010) rather than responding to local contexts.

In 2009, Saint Lucia, launched the draft of a new “National Agricultural Policy 2009–2015” (the policy), that was subsequently endorsed by the Saint Lucia Cabinet of Ministers. A Strategic Management Plan accompanied the policy to help improve institutional coordination for more effective policy implementation (IICA, 2010 p. 16). The policy had a strong focus on both the technological and market conditions required to foster agricultural innovation, with little consideration of how existing institutional arrangements may also need to evolve in support of innovation. For example, the policy promoted a value-chain approach to increase agricultural effectiveness and competitiveness (Policy Objective 1). It was assumed that this proposed approach would integrate all stakeholder groups into decision-making, supported by the establishment of a special National Advisory Committee (NAC), and the strengthening of producer organizations. In contrast, efforts to enhance national food security (Policy Objective 3) were based on pro-production activities that involved mobilizing local and community actors to reduce food losses and promote the consumption of local foods in collaboration with other ministries.

2.1. The policy challenge: Interlinking food security, food policy and innovation

Many of the food and agriculture system challenges facing Caribbean nations likely stem from the relatively poor levels of connectivity between the various institutions responsible for food security, agriculture and food policy and a generally heavy bias towards technological and market-based approaches to promoting innovation in the agri-food sector (Zilberman et al., 2012). As a result, public food policy has generally assumed that markets are the most efficient institutional mechanism for ensuring food security, focusing on either producer-oriented (i.e., higher food prices that could stabilize the long term livelihoods of producers) or consumer-oriented (i.e., lower food prices to ensure short term access for consumers) approaches (Timmer, 1980). Caribbean food policy has subsequently rarely focused beyond actors in commodity supply chains. However, significant changes to global food systems, primarily associated with globalization processes (Conway, 2013; Conway and Barbie, 1988; Gómez et al., 2013), have led to changes in how government understand food security (World Food Summit, 1996) and highlighted the need to better coordinate an increasing number and diversity of stakeholders (Pinstrup-

Andersen, 2009). Recognizing the complexity of the challenge, agricultural innovation systems (AIS)¹ thinking has emerged as a useful way to help policy makers broaden their focus from technological innovation towards enhancing interactions between actors and how their institutional and policy contexts might create enabling environments to foster innovation (Klerkx et al., 2012).

In light of recent research suggesting that the food policy choices available to national governments remain relatively limited (Benson et al., 2013), exploring stakeholder engagement issues in food and agriculture policy processes becomes a critical research gap. Improving the quality of such interactions has the potential to better inform and empower key actors in the agri-food system, while also producing more pluralistic and inclusive public policy capable of delivering desired outcomes (see Mockshell and Birner, 2015 on food policy outcomes with stakeholders of differing beliefs).

This paper explores the nature of stakeholder interactions in Saint Lucia’s agri-food system and considers some of the implications for food security-related policy outcomes (see illustration in Fig. 1). We broadly define stakeholder interactions as involving the coming together of actors to: identify common goals, question existing arrangements, promote interactive learning toward joint action and, create new products/services, processes or organizations (Saint Ville et al., 2015). Previous research in the Caribbean has already raised important questions concerning the socio-political challenges affecting policy innovation in the context of: NCDs (Samuels et al., 2012); biodiversity conservation (Watts and Wandesforde-Smith, 2006); and education (Lam, 2011). There has, however, been little to no research published in the context of domestic food security policy. Focusing on the multi-stakeholder process of Saint Lucia’s *National Agricultural Policy 2009–2015*, we seek to: (1) identify the nature of the interactions among different stakeholders in the development of national agri-food policy with a view to understanding how such interactions might better support policy innovation; and (2) consider how multi-stakeholder processes might better support the reorganization of national agri-food systems in support of domestic food security.

3. Methods

3.1. Research design

Following a case study research design (Glaser and Strauss, 1967; Yin, 1994), Stakeholder Analysis (SA) was used to assess stakeholder interactions in the agriculture-food system, focusing on their characteristics, actions and interests, and roles in affecting outcomes (Brugha and Varvasovszky, 2000). This analysis method has been previously used to: (1) identify actors affected by policies and to influence outcomes (Reed et al., 2009); (2) highlight gaps to improve institutional effectiveness (Brugha and Varvasovszky, 2000); (3) identify resources available to stakeholders to affect outcomes (Archer et al., 2007); (4) describe diverse and potentially conflicting interests; and (5) understand the dynamic nature of stakeholder needs and priorities (Reed et al., 2009). The SA method is generally used to identify actors affected by, or affecting, the decision-making process (Friedman and Miles, 2006); and it has been widely applied in natural resource management (Newman and Dale, 2005; Bodin et al., 2006; Bodin and Crona, 2009; Bodin and Prell, 2011; Rastogi et al., 2010). Stakeholder Analysis is appropriate for studying food security policy in Saint Lucia because: (1) the issue crosses-over natural, social and economic systems (Weis, 2007; Isaac et al., 2012); (2) there are diverse stakeholders with a

¹ AIS are defined by Hall et al. (2006) as “networks of organizations or actors” that work together to influence outcomes through interactive learning (p. 12).

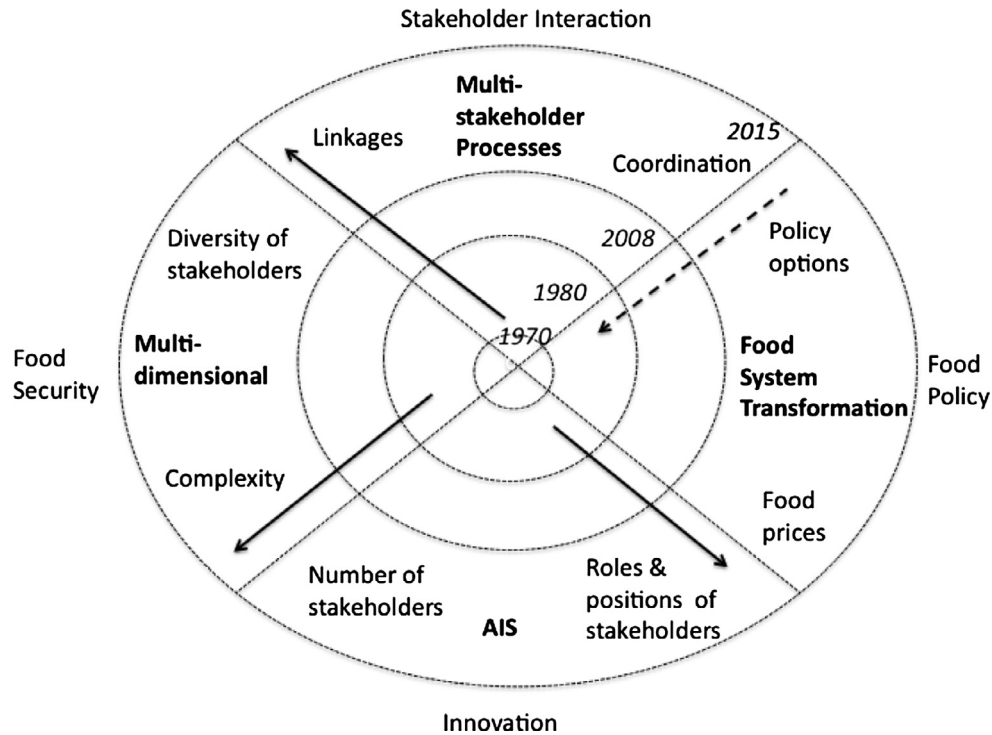


Fig. 1. The growing importance of multi-stakeholder interaction in the design of policy to improve nutritional outcomes. This Figure illustrates how developments in these literatures trend away from linear, narrow, single dimensional approaches towards coordination of the growing diversity of stakeholders. The interlinked literature of food security, food policy and innovation reveal multi-stakeholder processes as an emerging research area to better address food and nutrition challenges.

range of influence, knowledge systems and interests (Coffey and O’Toole, 2012); (3) there are multiple beneficiaries; (4) there is recognition that markets are ill-suited to manage such a multidimensional issue (Maetz et al., 2011); (5) there are a multiplicity of objectives and cross-sectoral/discipline concerns; and (6) actors may have been marginalized as a result of inequality and poverty (Grimble and Wellard, 1997; Foran et al., 2014).

3.2. Data collection

In order to identify the key stakeholders, reduce researcher bias in the selection process and ensure a diversity of representatives, we utilized two approaches. Using a “reputational approach”, we first consulted key informants working in the agri-food system (farmer organizations, public policymakers, researchers, private sector representatives) to develop a list of stakeholders (Brugha and Varvasovszky, 2000). Next, we used a snowball sampling approach that involved asking each stakeholder (respondent) to identify other stakeholders/groups that they felt should be consulted on the issues surrounding food and nutrition security policy in Saint Lucia. We subsequently identified ten major stakeholder groups: policy (agriculture, health and education ministries), research, education, credit, extension and information, inputs-processing-outputs marketing (IPOM), farmer organizations and farmers, private consultancy, external assistance, and NGOs. These groupings were designed to reflect similarities in function, common goals and joint action around innovation activities (see Temel, 2004). We then conducted 37 semi-structured interviews with key informants from each group, between December 2011 and August 2012 (Table 1). Interviews took an average of 90 minutes and were collected in accordance with McGill’s ethical research guidelines.

Interview questions covered the involvement of participants in the development of the National Agricultural Policy 2009–2015,

Table 1
Stakeholder groups and sample included in our analysis.

Stakeholder groups	Number of people interviewed	Male	Female
Policy	5	3	2
Research	3	2	1
Education	2	1	1
Credit	2	2	0
Extension and information	3	2	1
Inputs-processing-outputs marketing	9	8	1
Farm organizations and ^a farmers	8	6	2
Private consultancy	3	1	2
External assistance	1	1	0
NGOs	1	1	0
Total	37	27	10

^a These farmers were involved in and were able to comment on the policy process because of their additional roles (such as technical officers, extension officers, policymakers).

interactions with other stakeholders, and perceptions of stakeholder influence on the policy and issues confronting policy development in the Saint Lucia agri-food system more broadly. Secondary data were collected from policy documents, reports, newspaper articles, newsletters, website information and leaflets/flyers in order to “fact check” and corroborate data collected through the interviews (Hancke, 2009). We recognize that our analysis did not consider consumers as being a stakeholder group in the national policy process and this is a limitation of our study.

3.3. Data analysis

Interviews were audio recorded and fully transcribed for qualitative data analysis. Ongoing memo-writing by the interviewer (ASV) helped identify recurring themes that were then used to fur-

ther develop existing questions and generate new questions. Qualitative data were analyzed using content analysis techniques (Altheide, 1987; Morgan, 1993), that involved reflective and iterative reviews of transcripts to identify emergent themes rather than using predefined or rigid categories. The general procedure involved reviewing each interview, and assessing the role and level of involvement of the participant in the policy process. Stakeholder groupings were used to reflect overlapping interests and knowledge sources in the agricultural system. For example, we grouped all high-level public policymakers from different ministries into the 'Policy' stakeholder group. The Inputs-Processing-Outputs-Marketing (IPOM) stakeholder group reflects the increasing consolidation (see Temel, 2004) and close links of private interests covering areas of inputs, food processing, distribution, retail and marketing. We interviewed representatives from the three main farmer cooperatives/groups producing fresh foods for the domestic market: Bellevue Farmers' Cooperative, Black Bay Farmers' Cooperative, and Grace Farmers Group. We then assessed interactions across stakeholder groups (daily, weekly, monthly frequency), focusing on the nature of their communication (formal/informal), the motivation for their engagement in the multi-stakeholder processes (voluntary, contractual, legal mandates), and the level of influence associated with their involvement as noted by other stakeholders. We then applied the constant comparative method in order to generate key themes and identify relationships in the qualitative data collected (Glaser and Strauss, 1967). More specifically, we compared themes and codes arising within each interview for consistency, then between interviews within a stakeholder group to identify similarities and differences, then across different groups to assess the broader context and identify overarching themes (Boeije, 2002). Data coding was conducted manually using MaxQDA software. In an effort to help the reader better assess the nature of the emergent themes in our data we present illustrative quotes.

Following data coding, we applied Mitchell et al.'s (1997) theory of stakeholder identification and salience, in order to systematically assess the configuration of relations and interactions between national stakeholders and smallholder farmers. This theory is based on the assumption that "stakeholder salience" depends upon how decision-makers perceive attributes of *power*, *legitimacy* and *urgency*, among other stakeholder groups (Mitchell et al., 1997). We assessed these attributes primarily based on the nature of the communications and interactions described by our interview participants, and supplemented this information with secondary document data, where possible. Stakeholders were classified according to their perceived possession of the following attributes: (1) the stakeholder's power to impose their will in the interaction through the use of coercive, utilitarian, or normative power sources (Etzioni, 1964); (2) the legitimacy of the stakeholder's actions/claims as being appropriate and desirable (Suchman, 1995); and (3) the urgency associated with the stakeholder's claim(s). This final attribute corresponds well to the short "shelf life" of much of the fresh food being produced by smallholder farmers in Saint Lucia, and the low-level of post-harvest technologies generally available to them.

Qualitative data analysis was complemented with Social Network Analysis (SNA) (Prell et al., 2009); which allowed us to graphically represent the perceived relations identified by respondents to better understand the overall structure of communication and interactions being reported (see Wasserman and Faust, 1994). Reed et al. (2009) has also recommended the use of SNA to identify central actors, trust and influence. We constructed two-mode affiliation networks that consist of two key elements: a set of actors (respondents) and a collection of events (stakeholder groups) by transferring answers from interviews into binary data (presence/absence). These two-mode matrices identified: (1) interaction

(yes/no) with our ten stakeholder groups and; (2) stakeholders identified because of their perceived influence in the agri-food system. We adjusted the size of nodes using the degree centrality measure (denoted by $C_D(P_i)$) of each respondent and stakeholder group, to highlight, by increased size, those groups that can be seen as important based on their level of activity or number of contacts (Faust, 1997). Network analysis was undertaken with UCINET VI, and graphical analysis with NetDraw II.

4. Results

4.1. Stakeholder interactions in the policy development process

The Saint Lucia Ministry of Agriculture, Food Production, Fisheries, Cooperatives and Rural Development (the Ministry) is the primary authority responsible for the development and implementation of the *National Agricultural Policy 2009–2015* that includes national food security objectives. The Ministry comprises primarily two of our stakeholder groups: (1) the 'Policy' group comprising administrators, technocrats and the Corporate Planning Unit (with the later directly responsible for the policy development and coordination); and (2) the 'Extension' group. As early as 2004, the Inter-American Institute for Cooperation on Agriculture (IICA) (part of the 'External Assistance' group) provided support to the 'Policy' stakeholder group of the Ministry of Agriculture. These efforts were directed towards rationalizing the institutional framework of the Ministry to support "efficient administrative and technical management of the agricultural growth and development process 2010 through 2015" (IICA, 2010 p.10). To support these efforts, a multi-sectoral consultative participatory process was initiated. Our results indicate that the Ministry ('Policy' stakeholder group) played a central role guiding the consultative participatory process as stated by the policy, which required them to "manage the process of integrating all stakeholders in the planning, implementation and evaluation process" (p.5) (Fig. 2). We used social network analysis (two node-affiliation network) to map reported interactions between stakeholder groups and respondents. 'External Assistance', 'Farmer Organizations and Farmers' and 'IPOM' stakeholder groups played a secondary or bridging role in this process. This finding was also supported by qualitative data:

"So it was a lot of consultation . . . It took us about ten years to develop the whole thing. . . we talked to schools, we talked to farmers, we talked to farmer groups, we talked to bankers, we talked to everybody who we identified as stakeholders and then we developed a document, and sent out a draft" (Policy stakeholder).

Despite the key role of, and time involved in developing, the policy, respondents provided mixed views on the *National Agricultural Policy 2009–2015*. Those who were involved in the process described the policy as having minimal impact, taking too long to develop, and as a result being poorly implemented. Respondents who were not involved in the process questioned the existence and measurable outcomes of the national policy. Generally, many respondents seemed unfamiliar with the final content of the policy, particularly in the area of food security.

"[T]here's an excellent policy framework. . . but I don't know that it's really influencing farmer decisions. Because I don't know who is really implementing that policy and in what way it is being implemented. . . ." (IPOM-Outputs stakeholder).

In the area of enhancing national food security (Policy Objective 3), the policy prescribed collaboration with other ministries (Education, Health, Tourism, Finance, and Social transformation), to "promote and influence the consumption of locally grown food products" (p.9). However, respondents suggested that the consultative

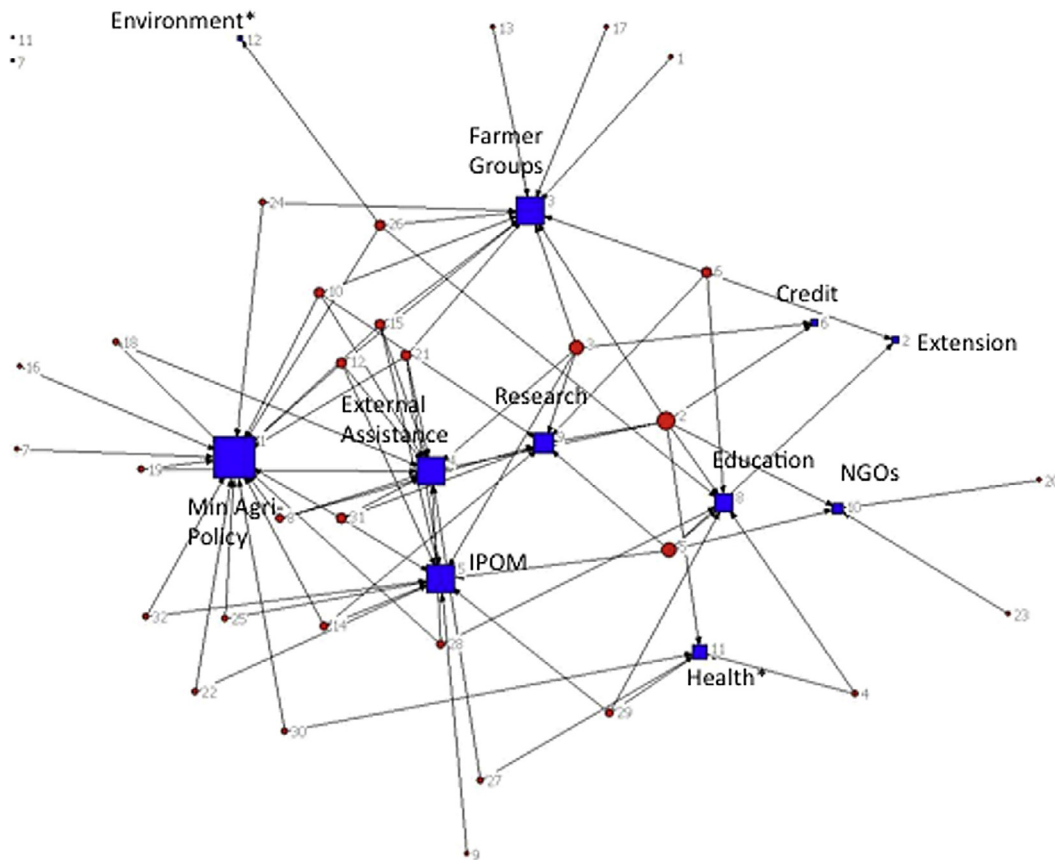


Fig. 2. Social network analysis (two-mode affiliation network) mapping the interaction between respondents ($n = 32$) and Stakeholder Groups* ($n = 12$). The Policy group (11) played a central role with three other groups playing a secondary role (1-Policy, 2-Extension, 3-Farmer Organizations, 4-External Assistance, 5-IPOM, 6-Credit, 7-Consultants, 8-Education, 9-Research, 10-NGOs,) in the interaction with respondents. * Stakeholder Group 11-Health was pulled out of the Policy Stakeholder Group to show its separate and distinct interactions with other policy groups. 12-Environment was not interviewed but added because of increasing interactions associated with natural resource management activities.

participatory approach proved inadequate to create a common vision, prioritize action, and integrate differing stakeholder perspectives in a meaningful way. A noted limitation of this consultative participatory approach might be explained by respondents claiming that it did not go far enough, and that the scope of policy consultations had been too narrow and lacked transparency. For example, one 'Policy' respondent from the Ministry of Health shared:

"There is no role for Ministry of Health in the (agriculture-food) policy development process that was undertaken by MAFF (Ministry of Agriculture). . . MAFF is not working in collaboration as they should".

This was seen by many as resulting in a lack of co-ordination and integration:

"You don't see structure and coordination in a lot of things that by now you should have expected from an agricultural sector" (External Assistance stakeholder).

One area this lack of coordination and collaboration could be seen was in national food security (Policy Objective 3). Although the Ministry held responsibility for supporting domestic food security, the policy appeared to be focused on sector-driven activities of food production (i.e. the food availability dimension). No other mention was made of the national policies related to other dimensions of food security managed by other line ministries. To illustrate: the Ministry of Commerce managed the National Food Supply (food accessibility dimension) mandated by the *Distribution*

and Price of Goods Act 1967. As part of this mandate, the Ministry procured, stored and distributed, managed and monitored prices of processed food imports (rice, flour, and sugar) at an annual cost of US\$5-7 Million (GOSL, 2010). Additionally, the Ministry of Education manages the School Feeding Program (food utilization dimension) which feeds ~38% (7106) of primary school children daily (GOSL, 2003, 2010). The absence of efforts to integrate these initiatives into the policy appeared to support qualitative data that suggested:

"[M]echanisms are needed to foster collaboration to get the job done" (IPOM-Processing stakeholder).

There appeared to be a lack of appreciation for such mechanisms to support the consultative participatory approach from the 'Policy' stakeholder group. Respondents also described the Saint Lucia agriculture and food governance system as being driven "from the top". As a result, while there were varied meetings, national consultations to discuss and review the policy document, the end product appeared to develop from officials within the Ministry of Agriculture (government administrators and policymakers/politicians). A major perception of stakeholders was that there was a tension between policy development and practice in the agri-food system that tended towards *ad hoc* project implementation (unrelated to policy goals). Respondents characterized these actions as reactive and "politically expedient":

"[T]hey (policy makers) don't want to sit and work through things in a lot of instances now. . . they want quick fixes. Anything that will sort of take some time to unravel. . . they tend to shy away

from it now in the sector because they want immediate answers, they want to see immediate solutions” (IPOM-Outputs stakeholder).

Respondents described this policy focus on short-term action rather than long-term development of the food system as undermining the usefulness of the policy process and limiting the potential importance of projects implemented. For example, issues such as responding to climate variability and frequency of natural disasters were not addressed in the policy document.

4.2. Informal and formal stakeholder interactions in the agri-food system

There have been varied efforts over the years to create multi-stakeholder processes to facilitate the development and implementation of agri-food policy in Saint Lucia (Budhram, 2008; Singh et al., 2005). In 2009, the Ministry established a National Advisory Committee (NAC) to: (1) function as a think tank to advise the Minister on emerging issues; (2) propose strategies for intervention; and (3) monitor implementation of the policy framework. Previously in 1988, another formal mechanism, the National Agricultural Advisory Council (NAAC) was developed with support from external assistance. The Team on Agricultural Technology (TAT) was then mandated to develop policies with broad representation and input from multiple stakeholders in the agri-food system. Initial membership of the seven-member TAT comprised senior officers of the Ministry of Agriculture (Director of Agricultural Services, Head of Extension Division, Head of Research Division, Manager of Agricultural Stations, Head of the Planning and Statistics Unit, Head of Marketing), however there was little detail on the NAAC membership (IICA, 1988). These two entities had overlapping roles, with the NAAC mandated to support the Minister of Agriculture in the development of agricultural policies and plans operating through four committees, and the TAT on developing agricultural plans. However, with the demise of the NAAC mechanism in the mid-1990s, our respondents reported a lack of direction in the policy development, coordination and implementation processes, which ultimately led to its re-activation in 2002 to facilitate broader input into policy development for agriculture and related strategies (UNCCD 2002). By 2003, NAAC was replaced with a “consultative process” that many respondents reported had negatively impacted efforts to find ‘common ground’ on contentious issues, with policy processes becoming more *ad hoc*, top-down and less transparent. Without a clearly identified group and transparent process for integrating the varying views, farmers felt marginalized by policymakers and other respondents felt that certain key stakeholders were entirely left out of the policy process:

“I get the feeling that exporters are not important to them...” (IPOM-Export stakeholder).

“You know who I think is really minimized? ...intermediaries, these people who can create the change that is needed to grow the farmer. Nobody tends to make policies to support them ...exporters, agro processors... They don’t get as much of a voice as the producer” (IPOM-Outputs stakeholder).

While our respondents, especially the individual smallholder farmers, who were not directly involved in the policy process felt marginalized, those who were involved described the informal benefits of face-to-face interaction from their participation in the long-running meetings associated with their involvement in the domestic agri-food sector. Many of these respondents described

the central importance of their informal interactions (phone conversations, social engagements at meetings) in facilitating easy communication between them.

“It’s usually based on your own relationship with the person. I think a lot of agriculture is developing relationships” (Policy stakeholder).

“It is more informal, we have not reached that stage... as time goes by we would look at ways of putting more structured collaboration policy in place... but for now it is more an informal setting” (Education stakeholder).

“[M]ost of the people who work in these organization we go a long, long, long way back...you know everybody” (Research stakeholder).

“We work with extension officers mostly through a ‘gentleman’s agreement’, especially when working with the farmers and with the field demonstrations” (IPOM-Inputs stakeholder).

One respondent explained the process by which stakeholders get to better understand the perspectives of each other and work together:

“[I]n the past people tended to misunderstand each other, they tended to misunderstand the issues confronting different organizations, especially the farmers. And then as you meet with them they start breaking the ice, they start to understand issues that confront you and they tend to be a little more accommodative to your problems” (IPOM-Outputs stakeholder).

Despite these described benefits, a resource challenge associated with the move from the use of formal multi-stakeholder processes (such as the NACC) to more informal multi-stakeholder consultative participatory processes was the absence of a coordinating, implementing and monitoring body for the policy that was separate from the Ministry. As described by a ‘Policy’ stakeholder:

“Corporate planning is responsible for ... (interacting with) international agencies ... (managing the) statistics department... (liaising with) FAO for example. We are responsible for all projects”

This responsibility for donor projects also requires interaction between the Ministry (Policy group) and diverse stakeholders resulting in a plethora of additional national consultation processes. Saint Lucia receives a large number of donor-funded projects with one report estimating that there were 38 active or recently completed donor funded projects (Sir Arthur Lewis Institute of Social and Economic Studies, 2013). The same report estimated that 34% of these projects targeted the agricultural sector with an estimated value of US\$25 million, representing diverse donors with differing objectives, reporting requirements and timelines.

4.3. Stakeholder salience and influence on the agri-food system

Our findings indicated generally high levels of distrust between smallholder farmers and some stakeholder groups that served to limit the reciprocal knowledge flows needed to support the development of value chains. As described by a ‘Policy’ stakeholder:

“Farmers generally don’t trust anybody but another farmer. So if you are in a position of authority it’s kind of difficult for them to trust you”.

Respondent farmers explained this distrust as arising from consistently unmet service expectations. As stated by a smallholder farmer:

"If I call the Ministry of Agriculture now and tell them I have a problem on my farm and I need an expert to come and analyze this thing for me. . . I don't know how long it will take or if I will ever see one because they seemed to be more engaged in doing their own business".

In the context of agricultural co-operatives, respondents described administrative difficulties and limited capacity in terms of advocacy, market access and knowledge exchange. As described by an IPOM-Inputs stakeholder:

"There are issues with mismanagement, poor management and inappropriate use of funds. . . tardiness of payment . . . thirty day, or two- month, three- month delays in making farmer payments".

These internal limitations of cooperatives often result in farmers opting out of participation and conducting their marketing activities separately from their cooperatives. One possible explanation for this situation is the differing interests that serve to separate farmer group elites from other group members. As explained by a respondent farmer elite:

"Farmers like to pull down their associations. . . It is always a question of whether the leaders are loyal, whether the leaders are going to deal with farmer interests because there's always a suspicion of that".

Interestingly, respondents perceived the (Consolidated Food Limited) CFL supermarket as being the most influential stakeholder in the domestic agri-food system (Fig. 3). The extension stakeholder group was perceived as the next most influential stakeholder. The Black Bay Farmer's Cooperative, Bellevue Farmer's Co-operative, Development Bank, and Ministry Policy Group were perceived as having less influence. The Saint Lucia Marketing Board, a statutory board was perceived as the stakeholder with the least influence. Three main explanations were provided for this high level of perceived influence of the CFL Supermarket:

1. *The farmer certification program:* This program implemented jointly by CFL and the Ministry of Agriculture trains vegetable farmers on market-based issues, such as business operations, food traceability, quality and safety standards. The CFL Supermarket provides a price premium of an additional US \$0.0362 (per kilogram) to these certified farmers. Such a price premium is not provided to farmers by other local purchasing establishments such as the National Marketing Board (a statutory agency), or hotels.
2. *Interest-free loans to selected farmers:* This loans program evolved in the aftermath of Hurricane Tomas in 2010 when farmers experienced widespread loss of crops and faced difficulties restarting their production. The program was implemented jointly by two members of the IPOM stakeholder group (CFL supermarket and Renwick & Company Limited – the largest input supply company in Saint Lucia). Farmers are provided with interest-free loans for purchased supplies through the use of open bills. Loan amounts are based on five percent of the farmer's produce sales for the previous three to five years. CFL supermarket deducts monthly loan payments when the farmer delivers weekly produce to CFL. Respondents cited this innovative and easily accessible financial instrument as being a significant benefit to local farmers:

"The majority of farmers I would say are influenced by CFL (supermarket) because they are the purchasing body. . . The other thing is that the farmer is able to get a loan from CFL. I don't think that there is another private company that would give a loan to farmers" (External Assistance stakeholder).

"[G]etting loans for farmers proves difficult. . . CFL understands and know that it is important to farmers in order to help farmers produce quality products" (IPOM-Inputs stakeholder).

3. *Relationship building:* Respondents recognized that CFL had improved their image as a good corporate citizen and had developed a strong relationship with smallholder farmers. These investments by CFL improved the legitimacy of the CFL Supermarket and responded to the urgency of the smallholder cash flow demands. These changes created new farmer-centered services and processes:

"Supermarkets are actively interested in the farmer and have invested in relationship building, supporting the farmer in expanding his ability to go further than he would have gone before" (Credit stakeholder).

"Supermarkets (CFL) have changed the strategy, they are preparing themselves for challenges, the global situation, and new supermarkets coming in. . . (CFL) built a lot of storage . . . for local produce. They have cultivated relationships with the farmers" (Education stakeholder).

Such initiatives increased the legitimacy of the supermarket chain with smallholder farmers and distinguished the supermarket from hotels in their powerful position as buyers in a price-taker market, by reducing waiting times for payment (Fig. 4). Six of the stakeholder groups were identified as "latent stakeholders" because they held one of the three attributes (coloured in blue) of: (1) *power* to influence the food system; (2) *legitimacy* within the food system and; (3) *urgency* associated with the stakeholder's claim. Three "expectant" stakeholder groups held two of the three attributes (coloured in orange) while the CFL Supermarket Chain held all three attributes (coloured in green) (Table 2).

Improved interactions between farmers and the CFL Supermarket chain were reported as building legitimacy and stands in contrast to the missing reported interactions between the 'Policy group' and farmers. As described by a farmer respondent:

[T]here isn't the feedback loop (between farmers) . . . and (government) institutions providing services (to us) . . ."

Our findings also pointed to a trend of merger and consolidation in the local supermarket-retail industry. CFL was formed through the merger of the two main local chains in 2004. Changes in CFL interactions with farmers were initiated as part of aggressive efforts to legitimize their interactions and improve their brand image, with the entry of a competing supermarket chain (GL Foodmart) in 2010. In 2013, CFL bought GL Foodmart and became the sole supermarket chain operator in Saint Lucia, operating 11 stores with over 1200 employees. In 2014, there was further consolidation with the majority of shares in CFL bought by the regional conglomerate, Neal and Massey.

5. Discussion

5.1. Participation and collaboration

Despite efforts by the Ministry to utilize a consultative participatory process, our findings suggest limited success in identifying common goals, questioning arrangements and creating new processes to respond to food security challenges through the *National Agricultural Policy 2009–2015*. The nature of the reported interactions can be broadly characterized as a consultative participatory process, which can allow for ongoing communication between stakeholders, however do not appear to meet the threshold to

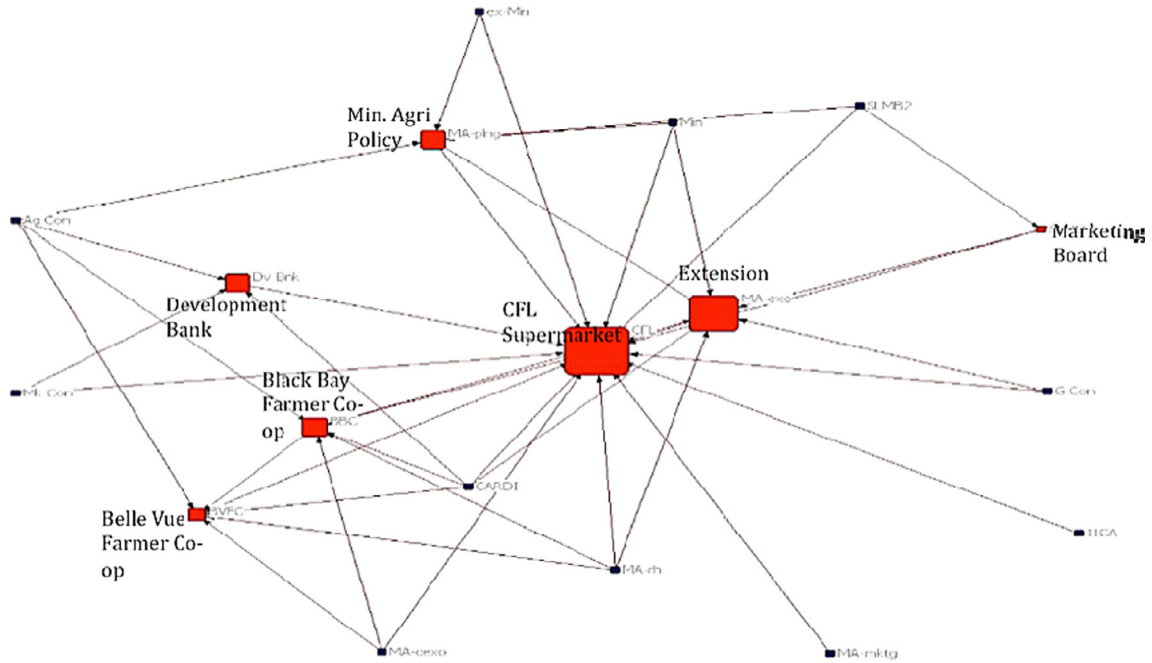


Fig. 3. Diagram showing perceived influence of stakeholders in the Saint Lucia agriculture-food system. CFL Supermarket within the 'inputs-processing-outputs marketing' (IPOM) group features prominently as the key stakeholder with a secondary position held by the extension stakeholder group (MA-exe). The Black Bay Farmer's Cooperative (BBC), Bellevue Farmer's Co-operative (BVFC), Development Bank, and Ministry Policy Group (MA-plng) were perceived as holding a lesser role. The Marketing Board, a statutory board was perceived as the stakeholder of least influence (SLMB). Node sizes (red) were adjusted for degree centrality. Blue nodes represent respondents. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

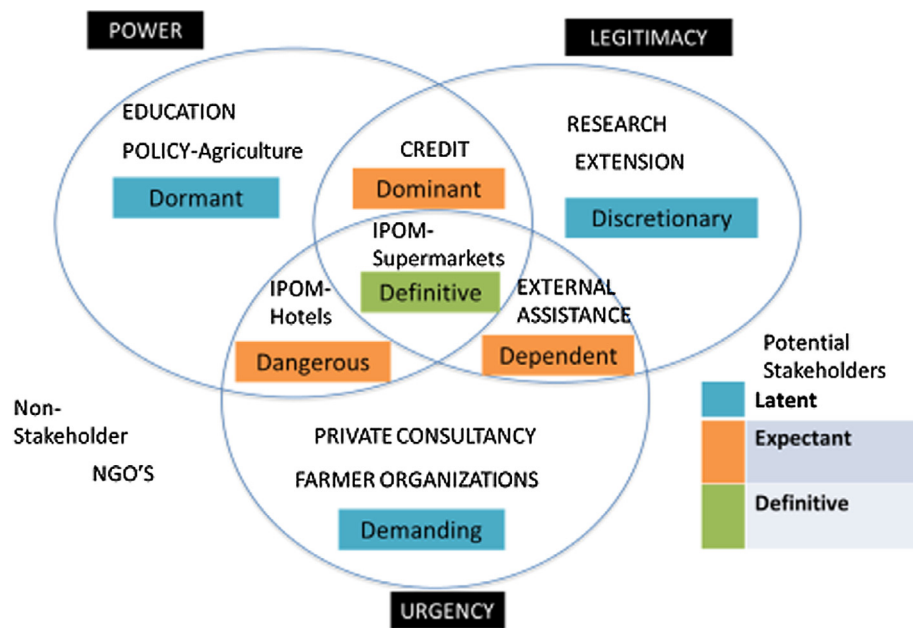


Fig. 4. Supermarket Chain (CFL) emerged as the definitive stakeholder in its interactions with smallholder farmers based on possession of attributes of power, legitimacy and urgency, among other stakeholder groups. We applied Mitchell et al.'s (1997) theory of stakeholder identification and salience to identify who would really count in a business environment.

create integrative food security-related policy (Pretty, 1994; Kanji and Greenwood, 2001). Such contested policy areas, with diverse stakeholder interests and differing stakeholder access to resources, generally requires open, collaborative and integrative multi-stakeholder processes in order to facilitate system innovation in support of desired outcomes (Hall et al., 2006; Klerkx et al., 2012; Lowitt et al., 2015a, 2015b). In the context of AIS (Hall et al., 2006) such participatory processes need to go beyond any

single sectoral goals (as observed in our case study) to facilitate interactions that stimulate interdependencies between actors, and promote different forms of social capital (Kilelu et al., 2013). Food security policy development processes could benefit from explicitly acknowledging participation as a right, creating learning opportunities and becoming more inclusive in order to better accommodate, integrate and gain acceptance from diverse stakeholder perspectives (Vervoort et al., 2014).

Table 2

Power, legitimacy and urgency in the interactions reported between stakeholder groups and agricultural producers in Saint Lucia.

Stakeholder groups	Evidence of power	Source of legitimacy	Urgency	Nature of relations-between the stakeholder group and smallholder farmers
Policy	x**	–	–	Limited acknowledgement; restricted interaction; unused power
Research	–	x^^^	–	Limited attention or acknowledgement; dependent upon informal involvement
Education	x***	–	–	Limited acknowledgement; restricted or no interaction; unused power
Credit	x***	x^^	–	Increased responsiveness through formal mechanisms; acknowledged importance of relationship; communication delegated to specialist
Extension and information	–	x^	–	Limited attention or acknowledgement; dependent upon individual social relationships
Inputs-processing-outputs marketing	x*	x^^^	x	Responsiveness manifested through uni-lateral acts; subject to change without notice; use of coercive tactics: actions dangerous or uncontrollable threat to well-being
Farm organizations	–	–	x	Limited attention, generally ignored; even irritating relations; limited impact
Private consultancy	–	–	x	Limited attention or generally ignored; even irritating relations; impact limited to project objectives
External assistance	x***	x^	–	Increased responsiveness; operates through the advocacy of more powerful stakeholders
NGOs	–	–	–	Non-stakeholder

Types of power:

*Coercion - abhorrent tactics, violence or force (strikes, threats).

**Utilitarian - material or financial means (goods, services).

***Normative - symbolic resources (respect, acceptance).

Types of authority:

^Moral- what is considered right or accepted behavior.

^^Legal-based on the law or contract.

^^^Property-based-rights of (shared) ownership.

5.2. Social capital and informality

While individual institutions, ministries, donors and corporations, through varied projects and sector-specific initiatives may be able to address elements of food insecurity in Saint Lucia, our results suggest that greater integration of these actions will be required to reduce duplication and enhance coordination between the disconnected institutions operating at various levels. According to IICA (2011) poor coordination has been a long-standing issue limiting the effectiveness of public policy in the Caribbean. While our findings identified some limitations in the national public policy process, we also found they have relationship-building benefits, but that these benefits have not been able to galvanize efforts to address the broad areas of policy concern. Reported benefits included the building of interpersonal relationships among respondents connected in the policy process; and the key linking role played by the Ministry in fostering diverse participation. Areas of concern identified by respondents included: (1) a disconnection between policy and practice; (2) poor quality of collaboration (with key agencies and historically ignored intermediaries), distrust and knowledge gaps between policymakers and smallholder farmers; (3) tension between short-term project benefits (supported by formal mechanisms) and long-term policy changes (supported by informal mechanisms); and (4) lack of transparency in a top-down policy development process. The importance of social capital (characterized by trust, shared norms, reciprocity and social networks) for engendering trust, and improving the success of multi-stakeholder policy processes is already well known (Sanginga et al., 2007; Lowitt et al., 2015a). Such interactions have been viewed as being generally positive for agricultural system innovation (Fischer and Qaim, 2014; Lowitt et al., 2015a; Saint Ville et al., 2016; Reed and Hickey, 2016), however high levels of social cohesion [particularly among technocrats and elites in the small populations of SIDS (Briguglio, 1995)] can also serve to limit innovation potential.

In this way, our findings also highlight a potential issue of 'elite capture' in the national policy processes of Saint Lucia, which may help to explain why there is resistance to institutional change despite the recognized limitations of maintaining the status quo. In such situations, individuals with superior political status (due, for example, to economic, education or other social characteristics) take advantage of their position to capture a disproportionately

large share of resources or benefits (Bardhan, 2002; Persha and Andersson, 2014). For example, Granovetter (1973) showed that strong ties created among homogenous subgroups are often created when actors spend large amounts of time together, developing emotional intensity, intimacy, and reciprocity. The social cohesion among elites formed by these strong ties (also known as bonding social capital) may help explain why stakeholders in our case study were unable to address longstanding issues despite working together (for ten years) in the policy development and implementation process. Building on Granovetter's work, Burt (1992) identified the "structural holes" that can develop within such cohesive subgroups, potentially hindering effective information flow across the larger group of stakeholders (Burt, 2002, 2005). Such holes have been shown to create an advantage for third parties (who can receive a competitive advantage) by brokering the flow of information and controlling the interaction between stakeholders (see Floress et al., 2011; Alexander and Armitage, 2015; Barnes-Mauthe et al., 2015). In small island developing states like Saint Lucia, where mutually reinforcing social rewards of friendship and prestige often exist among elites (Briguglio, 1995), there can be powerful, yet unseen, pressures to conform to the prevailing viewpoint in decision-making processes, a situation also known as 'Groupthink' (Janis, 1973). This is an area that requires further empirical research to look at how these conditions may support elite capture phenomena in the context of SIDS.

A review by Leeuwis and Aarts (2011) on communication and innovation offered three recommendations that may help to change communication patterns in complex multi-stakeholder policy processes, as follow: (1) review and re-ordering of stakeholder relations; (2) recognition of complex interdependencies; and (3) alternatives that supplement regularized communication patterns. Future efforts to resolve the complex food security challenge facing Saint Lucia will likely require strong collaboration across government ministries, the reconciling of policy conflicts and increased policy innovation involving multiple stakeholder groups (Saint Ville et al., 2015).

5.3. Roles and responsibilities of government

Many of the challenges identified in our study are not exclusive to Saint Lucia, and instead relate to the complexity and multi-dimensionality of the sustainable food security challenge, with

agri-food systems impacted by a multiplicity of drivers and activities that cross scales and sectors (Margulis, 2013). Addressing such complex challenges will, however, likely require a range of adjustments to the conventional institutional arrangements of the Saint Lucia Ministry of Agriculture, Food Production, Fisheries, Cooperatives and Rural Development (the Ministry) as the authority responsible for the development and implementation of national agriculture policy. The reported inability of public policy institutions to respond to the ongoing transformation of the agri-food system stands in contrast to the flexibility attributed to other stakeholder groups and may explain why our respondents identified the CFL supermarket chain as the most influential and salient national stakeholder. Their perceived influence is largely a result of the growing importance and consolidation of local supermarkets that are increasing their investments in the domestic agri-food system. While there are a wide range of potential benefits to both producers and consumers from these efforts to build dedicated supply chains (e.g. created by no interest loans to farmers), the public interest in improved nutritional outcomes needs to be backstopped and bolstered by broader-based societal action. Other potential issues include challenges for smallholders to access these types of markets due to rigid product quality and uniformity standards (Brooks and Loevinsohn, 2011). Recognizing that market-led activities are going to be essential to developing the domestic agriculture-food system in Saint Lucia, Grote (2014) warned that issues of sustainability, equity and food and nutrition security will need to be carefully managed. This is an important role for government and warrants further research and policy attention.

Termeer et al. (2010) defined a 'monocentric approach' as one where the state, as the national authority, controls the national agenda and problem solving through top-down policy definition and implementation. In such a situation, because of the lack of appreciation of the complex interactions required to respond to the issue, there is a perceived reduced role for non-state stakeholders. In this case it is unlikely that policy goals can be accomplished using a sector-driven approach with clear divisions of tasks and responsibilities with distinctive legally-based authority. However, in the context of food security, inherent conflicts between stakeholder interests are likely to result in incoherence, fragmentation and poor coordination due to the complexity of the challenge (Margulis, 2013). When poorly appreciated, a 'top-down' approach to policy development and implementation is likely to increase conflict. Clearly all stakeholders require approaches that can better facilitate regular two-way dialogue, interaction across sectors, and commitment to continuous learning, flexibility, and knowledge exchange (Misselhorn et al., 2012).

Additionally there is a need to better integrate public and private sector policies in the Saint Lucia agri-food system. In order to better connect market and non-market approaches to agri-food system governance, "boundary spanning" actors/ organizations have been suggested as important for fostering agricultural innovation (Klerkx et al., 2009, 2013; Chaudhury et al., 2013; Hermans et al., 2013; Westley et al., 2013). According to Misselhorn et al. (2012), in the context of food security, boundary organizations "sit between sectors (such as science and policy, or market and natural resource management)... between or across geographic scales... facilitate the flow of information across sectors" (p.13) and help identify the appropriate scale at which food system issues should be addressed. Organizations or actors involved in 'boundary work' have been shown to provide added benefits of enhancing decision making, building trust and supporting more flexible responses to complex problems (Chaudhury et al., 2013) and appear to be much needed in the Saint Lucian agri-food system. Identifying such actors and organizations will require an assessment of the credibility of technical knowledge/experts, the salience or relevance of actions or information provided; and the

perceived legitimacy of actors in the policy process (Chaudhury et al., 2013). Agricultural cooperatives and research institutes were both identified as key secondary stakeholder groups in our study and have been found to play critical knowledge brokering roles in support of agricultural system innovation in different contexts (Hermans et al., 2013). In the case of Saint Lucia, further research is needed to assess opportunities for strengthening these boundary spanning actors to champion multi-stakeholder processes in support of innovation.

6. Conclusion

Multi-stakeholder processes are necessary in the development of public policies seeking to promote innovation in the face of complex and multidimensional challenges. Focusing on Saint Lucia, a small island developing state in the Caribbean grappling with complex agriculture, food and nutrition security challenges, we explored how a national multi-stakeholder process was shaped by stakeholder interactions. Our findings suggest that, while multi-stakeholder processes were utilized, stakeholder participation was limited by a number of factors with perceived negative effects on policy coordination, integration and stakeholder acceptance. Future efforts to resolve the complex food security challenges facing Saint Lucia, and Small Island Developing States more generally, will likely require stronger collaboration across government ministries, better reconciliation of policy conflicts and increased policy innovation involving multiple stakeholder groups through the work of boundary organizations. Such efforts have the potential to build more flexible and adaptive institutions, enhance knowledge exchange and learning, and build trust among stakeholders in the policy network.

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