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Linking Individual and Collective Agency for Enhancing Community Resilience in Northern Ghana

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ABSTRACT

This article aims to explore the relationship between individual adaptive actions and enhancement of community resilience to climate change as a communal objective. It proposes to pay attention to the concept of reflexivity as the primary individual capacity to link adaptive actions and community resilience. Drawing on the field research conducted in northern Ghana in 2015, this article specifically examines life histories of four small farmers and shows that they individually take adaptive actions and reflect on these actions. However, little opportunity exists for them to systematically communicate the reflections with others to learn from their experiences, nurture collective agency and enhance community resilience. The article concludes by outlining new strategies needed to facilitate the communication in particular cultural and policy contexts.

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Agency; climate change; community; Ghana; reflexivity; resilience

Introduction

Resilience thinking has become a major conceptual tool used by scholars and practitioners to orient their understandings about coping with dynamic change, as manifested in debates on climate change adaptation (Benson and Craig 2014; Moench 2014; Cooper and Wheeler 2015). In Ghana in West Africa, research and practice with a view to promote climate change adaptation has been actively promoted since the 2000s. Small farmers in the country's semiarid northern regions (Northern, Upper West and Upper East regions) have been known to be vulnerable to unpredictable droughts and floods exacerbated by climate change, and strategies to enhance climate resilience through adaptation interventions such as water management and soil fertility improvement are urgently required to protect and improve their livelihoods (Sova et al. 2014; Takeuchi and Gyasi 2014; Perez et al. 2015).

Defining the areas of applying such resilience strategies by reference to existing institutional and administrative boundaries remains contentious (Folke et al. 2007). However, in practice, resilience strategies in Africa are widely applied to *a community* (United Nations Development Programme 2010). An emerging body of the literature

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confirms that the community-based strategies are a vital tool for the vulnerable people to nurture their adaptive capacity, thereby enhancing community resilience (Davidson 2010, 2013; Magis 2010; Berkes and Ross 2013; Wilson 2013; Ross and Berkes 2014).

According to Berkes and Ross (2013, p. 6), a community's resilience is "understood as the capacity of its social system to come together to work toward a communal objective." Unlike the conventional sociological and anthropological understanding of community, which implies symbolic (or interest-based) as well as physical entity and process of individual identification with collectivities (Blackshaw 2010), a community in the resilience thinking is a place-based social system, embedded in a wider ecological system. A community is resilient when it has enough physical and social capacity for self-organization in the midst of environmental changes (cf. Cutter et al. 2008; Firth, Maye, and Pearson 2011). This is in line with the ongoing debates on the commons and their constitutionality, that is, a process by which resilience is built based on endogenous and community-based institutional building for common pool resource management (Haller, Acciaioli, and Rist 2016).

In short, enhancing place-based community resilience has been mainstreamed in climate change adaptation interventions. This mainstreaming often presupposes the existence of collective capacity for a community to organize themselves toward a common goal of resilience enhancement. However, this process of self-organization is not automatic, since it is often undermined by individual aspirations and actions (Davidson 2010, 2013); underlying power relations and local cultural politics (Cote and Nightingale 2012; Grove 2014; Weichselgartner and Kelman 2015); and larger environmental and developmental policy contexts (Wilson 2013).

In particular, the relationship between individual experiences of adaptation and community resilience remains unclear. The lack of clarity stems from an insufficient integration of social theory that primarily deals with the question of *agency* into the social-ecological system-oriented resilience-thinking (Brown and Westaway 2011; Cote and Nightingale 2012; Berkes and Ross 2013; Davidson 2013). The question of agency is even further marginalized in the context of African communities where vulnerable people are not agents of everyday adaptation but either victims of climate change or beneficiaries of externally introduced community-based adaptation projects (Bruijn, van Dijk, and Foeken 2001; Soeters 2016).

In this article, we propose to explore whether and how the individual agency that enables the everyday adaptation can lead to the making of a resilient community, drawing on experiences of small farmers in northern Ghana. We begin this exploration by reviewing the concept of *reflexivity* as what links individual and collective agency in relation to community resilience. The review is followed by an overview of our methodology that combines surveys and the biographical life history approach, and by cases of reflections narrated by four small farmers. The farmers' reflections indicate that their individual actions make them quite adaptive, but no systematic strategies exist for these farmers to communicate their reflections with others and nurture collective agency for enhancing community resilience. We conclude by outlining potential strategies to establish a pragmatic pathway to facilitate the communication in particular cultural and policy contexts.

Individual and Collective Agency for Community Resilience

One of the most comprehensive attempts to link individual agency and community resilience has been presented by Berkes and Ross (2013). This work proposes to integrate

the social–ecological system-oriented thinking of resilience and community-based achievable and participatory resilience-building strategies developed in psychological, mental health, and community development literature. While community resilience in the social–ecological system thinking focuses on the place-based resilience, community resilience from psychological perspectives indicates people-based resilience enhanced through nurturing of the sense of place. The integration of the two perspectives helps us to trace the social–ecological process of self-organization by reference to the individual process of recovery and reconstruction through community-building.

Building on this integration, we propose to further specify ways that individuals situated within the same ecological system come to engage with delineating the site of self-organization (cf. Shatzki 2005). How can individual agency work to nurture collective agency of a community to enhance its resilience? Or, more precisely, how do individual actions of coping and adaptation lead to negotiate necessary interventions and further strategies for community resilience enhancement? To explore these questions requires clarification of the concept of agency primarily as the reflexive capacity of individuals and collectives to become aware of their experiences as something valuable to be communicated with the wider audience.

Need for Reflexivity

According to a social theorist Margaret Archer (2007, 2013), the concept of reflexivity as a type of individual agency is one of the most neglected concepts in social sciences. Conventionally, the Cartesian thinking continues to prevail, assuming that individuals first think, carefully evaluate situations, and take rational actions. However, usually, and especially in the context of climate change, individuals “cannot know everything that is going on” to evaluate possibilities for actions and make rational decisions (Archer 2007, p. 24). Therefore, they often cope with situations *anyway* and reflect on it as past experiences to make temporal decisions (Davidson 2012).

While reflecting on the experiences of coping and adaptation, individuals learn how to improve their adaptive actions. Along the way, they may come to coordinate the actions and reshape practices. According to Schilling (2012), action, reflection, and practices iteratively and dialectically take place because individuals have the capacity to physically experience their own actions and verbalize the experiences to reflect further on the immediate situations and shape new practices.

This means that community-based adaptation strategies aiming to enhance community resilience from the outset cannot automatically work to generate collective engagement. They rather initiate the iterative and dialectic processes of individual actions of adaptation, reflections on these actions, and the practices to coordinate the reflections and further adaptive practices.

Reflexivity and Communication

Following the classic pedagogy of Paulo Freire (2003[1970]), individual actions eventually lead to change cultural, ecological, and political situations because, through reflections, individuals start recognizing the importance of collective action. If we apply this pedagogy to community resilience, individuals need to be given an opportunity to frame their

reflections in communicable forms to align their practices with others (see also Smith, DuBois, and Krasny 2016). Therefore, further support should be made for individuals to communicate their reflection outcomes with others within the similar ecological system, including their fellow community members and those who are beyond their place-based community boundaries. In this way, personally specific resilience is fully aligned with more general objective of place-based resilience enhancement, turning community resilience into more dynamic communicative or the so-called “collaborative” resilience (Goldstein 2012 discussed in Ross and Berkes 2014).

In turn, through communications, individuals can also come to understand the importance of negotiating new interventions to enhance their both individual and collective resilience (Otsuki 2016). The new strategies can be shaped then as outcomes of the negotiations, underpinned by individual reflections and the communication.

In this vein, Ghanaian farmers are taking their individual actions daily to cope with environmental changes as well as policy interventions offered by governmental and non-governmental organizations in forms of agricultural extension and water management schemes such as community dams. They are continually reflecting on the actions, shaping own adaptive practices, and communicating their reflections with others in the neighborhood and with researchers like us. However, their communication is not actively facilitated or systematically aligned with other spontaneous communications of individual reflections. This leads to low communicative, and thereby community, resilience. To identify possibilities for communication of reflections and new strategies, we need to trace the iterative processes of individual actions, reflections, and communications (or the lack thereof).

Methods

To trace the iterative processes of reflection, action and communication require us to use the biographical life history approach, classically defined as “the studied use and collection of life documents that describe turning point moments in an individual’s life” (Denzin 1989, quoted in Creswell 1998, p. 47). This is used in a wide range of social science and humanity disciplines including psychology, while it is not commonly seen in the social-ecological system studies. However, to integrate individual reflexivity and place-based community resilience enhancement into the social-ecological system, analysis entails reconstruction of stories of the persons who take adaptive actions and reflect on them (cf. Kapferer 2006).

The four small farmers’ stories are presented below. The farmers have been identified in survey activities conducted as a part of the 5-year international project entitled: Enhancing Resilience to Climate and Ecosystem Changes in Semi-Arid Africa (CECAR-Africa), in which in total six Japanese and Ghanaian universities have participated to conduct research on changes in livelihoods in northern Ghana. The project primarily aimed to introduce community-based adaptation strategies including weather forecasting system and water management strategies. The project selected 10 small farmer communities (whose sizes varied between 30–150 households) in districts next to the regional capitals (Wa for Upper West and Tamale for Northern, Figure 1) to facilitate examination of the existing institutions of governance at different levels affecting community resilience (Antwi et al. 2014).¹

We initially performed a pilot survey with 37 households in one of the communities in Tolon district in Northern region. The survey revealed a great deal of livelihood

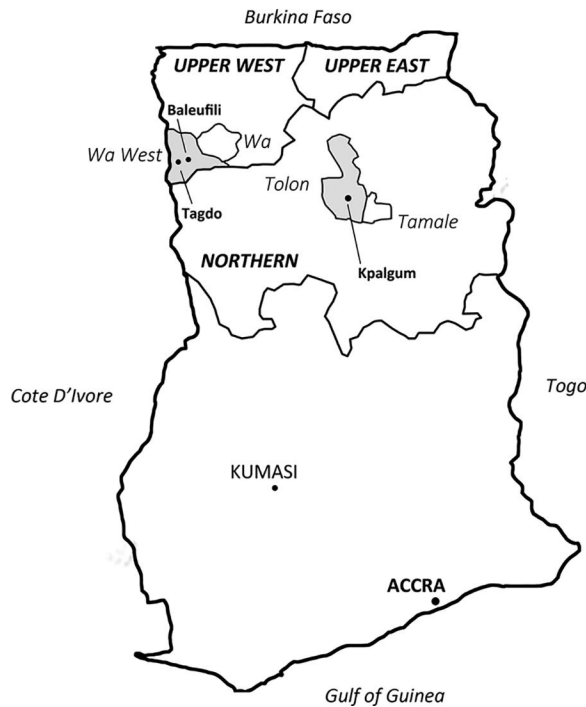


Figure 1. Indication of study areas in Ghana.

diversification process within and outside each community, ranging from farming (crop diversification or moving to more fertile land) and off-farming (agricultural processing) to nonfarming (migration to cities, engaging in trade) activities (Otsuki, Jasaw, and Lolig 2014). The diversification also demonstrated significant roles of seasonal migration and different adaptation strategies that existed for men and women. At the same time, concerns were raised about a lack of commercialization for the agricultural produce, scarcity of the fertile land due to chronic land fragmentation, and frequent crop failure due to rainfall invariability (Otsuki and Jasaw 2017). The community members argued that community resilience could have been enhanced if at least more solid crop value chains were available.

Thus, we came to further research on crop value chains in three of the 10 communities, which had been indicated as particularly vulnerable communities (Antwi et al. 2014): Tagdo and Baleufili in Wa West district in Upper West region, and Kpalgum in Tolon district in Northern region.

A baseline survey among 120 farmers in 2012 showed that every household cultivated a small plot of vegetables for household consumption in addition to major staple crops of maize and yam. The informants agreed that vegetable crops such as chili pepper and okra yielded high profit in local markets, and they identified those who commercialized these crops as successful farmers. The following value chain survey on various crops with the same farmers, conducted annually between 2013 and 2015, showed the additional potential for shea nut for oil extraction (by women) and the importance of combining staple crops with cash crops to diversify income sources as a risk management method.

During the survey activities, we started to have in-depth interviews with the successful farmers who, with no direct lineage to chieftaincy, could seemingly become better-off and

more adaptive to changing weather events than others. We then realized that the earlier surveys had not led us to understand why these could diversify their livelihoods more successfully than others and what caused others in their communities to be unable to learn from their experiences.

Consequently, we turned to the biographical life history approach to deepen our understanding of the turning points for the successful farmers to take adaptive actions, how they reflected on the actions, and whether or in what ways they communicated their reflections with others. The initial survey data provided background information and “a wider set of conventions that regulated the way in which people chose to render biographical information about their own and others’ lives” (Yarrow 2008, p. 337). The four farmers below have been selected to show the recurrent patterns of individual reflections and possibilities for effective communication to nurture collective agency for enhancing community resilience.

Results

Case Joe: Reflections on Crop Diversification

Joe, a young man from the Tagdo community has greatly diversified his crops over the years. He is one of the typical Dagaaba youth who took advantage of “the opening up of a road across the Black Volta ... [river]” to work on large-scale farms established in Brong Ahafo region in central Ghana during the 1970s (Amanor and Pabi 2007, p. 57; Van der Geest 2010):²

“It was difficult to make a living here, and we [he and his parents] went to work in a cacao plantation in Brong Ahafo in 1999. One of my brothers was already there. I learned tomato cultivation there, following my brother who was specializing in tomato farming ... In 2004, my parents decided to come home. I had met my wife in Kumasi... [the second largest city in Ghana after Accra, near Brong Ahafo] who worked for a chop bar at that time, but she was from here. We married and came back together.”

After coming home from Brong Ahafo, Joe helped to plant staple crops at his father’s six-acre farm. The rainfall necessary for staple crops became extremely unpredictable in the late 2000s, and he began to cultivate one acre of his own along a stream. He calls this small plot a “garden.” With the money he saved from his work in the cacao plantation, he bought a simple water pump to irrigate the garden and farmed tomato. At first tomato did well but then died from disease. He also realized that the market for tomato was saturated because many return migrants like him in and around his communities were planting tomatoes. So he started to look for alternatives:

“I had learned by then that there was a demand for okra ... So I switched the tomato to okra ... I gradually expanded my farm size as no one was claiming the land along the river ... Okra farming is good. I will be happy to tell others how to do it and also to rent out my water pump to them. Okra is a good business because it brings a weekly income. The profits can be invested in animals, the corrals and the farm inputs. A small number of cattle is important as it produces dung to fertilize the soil. I can even make some extra money to help with our children’s schooling.”

In fact, the okra farming by Joe is very unusual since okra is culturally considered to be a woman crop, mainly grown by women for household consumption during the rainy

season. The male producers of okra (or in fact vegetables in general) are often seen as lazy people; as one elder in the adjacent Baleufili community said in reference to Joe: “men should be working on crops that require hard labor—like making yam mounds!”³ In another dominantly Dagaaba community near Tagdo, people have refused to commercialize okra because “one elder sold okra and died.”⁴ Consequently, they believe that animal sacrifice to pacify their gods is necessary to commercialize okra.

At the same time, okra is an essential ingredient for local dishes throughout the year. Therefore, during the dry season, farmers must purchase it coming from outside the region. Joe observed this situation and went into the production. Currently, Joe’s wife is the only local person who sells okra at local markets in the dry season. In northern Ghana, local markets open daily in different locations, and his wife attends as many markets as possible. Joe himself also goes to markets to exchange information on weather and farming with others.

According to Joe, he has been trying to communicate with others about his commercial okra farming but “people are reluctant to start ... [new crops]” because of the cultural belief and also of necessary initial investments they have to make to establish a garden, including the cost of fertilizer and fuel for pumping water. Especially when farmers do not own cattle, it is difficult to reduce the cost of fertilizer. Indeed, people generally complain a lack of money, and Upper West region is known to be the poorest in Ghana. Yet, Joe asserts that if one finds a niche in local markets by observing where demands are, money for investment in farming and cattle as well as in children’s education can be generated.

Recently, Joe has further diversified his cash crops from okra into green pepper, cucumber, eggplant, and watermelon. He also planted mangoes and cashews, not only because the sale of fruit could be lucrative but because the trees were said to bring rain. Yet, unless there is a strong support for other farmers to start experimenting new crops, Joe’s diversification experiences do not go beyond his garden.

Joe himself seems to believe that the formal education is necessary to be able to pass advice to others. He has four children and is eager to make them well educated, so that at least one of them “can come back and help with more knowledge on farming.” Cash income from dry season farming is important in carrying out this family goal of education.

This case of Joe shows that an individual adaptive action such as crop diversification can lead young farmers to adapt to climate change. He emphasizes that: “Dry season farming is the key for young farmers in the north” to thrive under unpredictable weather conditions. He reflects on this action to further emphasize the importance of observing local markets and investing in new crops despite local cultural barriers. However, his reflections are not communicated effectively or not taken seriously because no positive evaluation exists of formally uneducated farmers’ experiences.

Case Kwachi: Reflections on Crop Specialization

Kwachi has a story of migration similar to Joe’s. He went to Brong Ahafo in 2004, initially as a farm laborer raising yam mounds. After his 1-year contract expired, he was recruited as a laborer on a green pepper farm to transplant seedling every 25 days. Then, the owner started to send Kwachi to Kumasi for commercialization of peppers. When the harvest was not large enough and he did not go to Kumasi, people from Kumasi procured peppers directly from the farm he worked. This observation led Kwachi to conclude that green

pepper was a special product in high demand. Although Kwachi's initial contract at the pepper farm was for 2 months, he ended up staying at the farm for 1 year. He came back to Baleufili at the end of 2006.⁵ He reflects:

“In November 2007, I transplanted pepper seedlings on my own. A trader bought three peppers for 20 *pesewas* [approx. \$0.05] and sold one fruit for 20 *pesewas* in the local market. So I decided to directly sell my peppers at 20 *pesewas* at the local market. The first farming season fetched 1300 *cedis* [\$325]! It is big money, so I bought more seeds. The year 2009 was the best year so far, as the harvest generated 4000 *cedis* [\$1000]. The year after, the harvest dropped to 500 *cedis* [\$125] because the plants were attacked by disease. Today, three peppers can be sold for one *cedi*; or five peppers for one *cedi*. The market fluctuates a lot.”

Planting green peppers is technically risky because of disease and a higher chance of competition with other producers; peppers are sometimes sold at local markets by traders from southern regions. The green pepper plantation also requires intensive watering and frequent fertilization during transplantation phase. Nevertheless, Kwachi believes that green peppers are advantageous for dry season farming since the maturing time is shorter than other vegetables such as tomatoes. Therefore, he came to specialize himself in green pepper farming.

Kwachi's risk management for specializing in one crop involves his management of cattle. He has six cattle, and with profits from the pepper plantation, he buys a head of cattle, and when the pepper price is low, he sells cattle to make money for inputs and for his son's education. Thus, his herd size has remained at six for years. But this cycle of investing the profit from dry season farming into cattle and vice versa is important, as he is never totally out of money even if the pepper fails.

Kwachi believes that, in retrospect, he would not have had to migrate if someone like him could tell him how to plant vegetables and raise cattle. He has no intention of going back to Brong Ahafo, as he thinks he should be able to learn from others with similar experiences, such as Joe. Meanwhile, the weakness of communication between farmers makes him think that his children should not follow into his profession since they are unlikely to learn new knowledge unless they become farm laborers in the south. With the money he obtains from the pepper and cattle trade, he sends his eldest son to university in Cape Coast in the south of Ghana.

Like Joe, if any of his children engage in farming, Kwachi emphasizes that “they should modernize the farming” based on knowledge they gain in formal education. He wishes that his children could help him improve the yields of staple cropping and manage risks of cash cropping. This implies that the specialized farmers like Kwachi are in fact asking for more engaged rural extension services, which does not uniformly apply the mechanized farming but more incrementally modernize the ongoing farming by letting them experiment with producing and commercializing existing crops. However, Kwachi is not yet aware of how to organize collective action to demand such services.

Case Adisa: Reflections on Innovation by a Woman

Adisa is a woman of 25-year-old in Baleufili community in Upper West. She has also worked in Brong Ahafo, following her parents. In general, women who migrate engage in their own work, mostly as porters at local markets. As they interact with other women

from different locations, they also learn how to make new dishes that can potentially be sold at markets back home in the north, or how to make new clothing and hair styles.

In case of Adisa, she worked with her father on a cashew plantation for 2 years. About 5 years ago, she returned to her home community. Upon returning, she started to engage in the traditional women's work in the region, that is, shea butter processing, together with her mother who had been collecting and processing shea nuts since her childhood.

Shea butter is the major source of income for women in northern Ghana, and it is considered to be one of the crops with the potential to enhance resilience of women as a collective (Elias and Carney 2007; Jasaw, Saito, and Takeuchi 2015). However, the market in the Upper West region is limited, and few grinding mills are available for cracking the hard shells of shea nuts. Therefore, women in Upper West commonly brew local beer, trade soybeans, or process rice that men have produced. Nonetheless, Adisa kept on going to a nearby market to retail her shea butter at a small scale.

One day, Adisa met a buyer from the regional capital city of Wa who bought all her stock. From then on, Adisa offered to travel to Wa to supply her shea butter to this buyer.

"I started producing more shea butter and supplying the market in Wa. Since I found the market, we increased our collection of shea fruit as a household and we processed more butter. Three years ago, I made enough money to buy a tricycle to help cart the shea fruit we gathered on the farm to our home for further processing into butter. With the means of transport, my work became much easier. As there is no grinding mill for shea in this community or nearby, we usually transport the kernel with my own tricycle to Wa for grinding into kernel grits and also for milling after we have roasted the grits.

My mother usually go to the farm with my siblings early in the morning to gather shea fruit. I make sure that the fruit is de-pulped on the field before we cart them to the house for boiling. The fruit flesh is good source of manure, so we always bury them to decompose on the farm. We will then spread the organic material on our maize field and carry some to our pepper and okra garden by the community dam. I am already familiar with this easy way of getting fertilizer because we used to do it with cashew fruit when I worked in Brong Ahafo. My employers at the cashew plantation produced a lot of vegetables without using chemical fertilizer. I decided to try a similar method here. It's working very well.

Usually by the time the shea season is over, I turn to selling vegetables from my garden until December. Then I buy rice from rice farmers in this and surrounding communities to parboil and sell off in Wa. This keeps me and my family engaged till the next shea season when this cycle begins all over again."

The story of Adisa illustrates a clear case of reflections on her innovative actions leading to establish a cycle of adaptive actions. As women usually do not own cattle, her manure is the shea waste, and this is improving her vegetable production and commercialization. She is communicating her reflections with other women. But like the case of Joe, other women engaged in the shea butter production, vegetable production, or rice processing usually express that their main constraint is the lack of working capital to continue financing their trade. In other words, there is a difficulty in establishing the cycle of reinvestment.

As a matter of fact, women communicate with each other more frequently than men since parts of their activities including the production of shea butter, beer, or rice processing and the commercialization of products in local markets are done collectively. However, their collective activities revolve around the mutual help, which is not effectively linked to the reflection-based agenda of the needs for reinvestment techniques. Even if they come to outline the need for collective action, women are generally excluded from

communitywide decision-making processes led by (male) elders and chiefs. Therefore, a better understanding is necessary to address how women's knowledge could be widely shared within and across communities.

Case Iddrisu: Reflections on Innovation by a Man

If Adisa's case is innovative because she effectively uses the shea residue as organic manure in her vegetable garden, Iddrisu from Kpalgum in Tolon district of the Northern region is innovative because he uses cattle dungs to fertilize his main cash crop: tobacco. He is also unique since he never left his community except for a short period in Tamale unlike others who acquired new knowledge through migration.

Like other farmers in his community, Iddrisu grows multiple crops, including maize, rice, pepper, yam, soybeans, and tobacco. He explains that maize is the most important crop in terms of food security and, for cash income, tobacco is the most important, since it helped him "build this house with five rooms and 12 packets of zinc [for modern roofing] and a motor bike." In fact, tobacco is a major (male) cash crop in the region, and almost every man in the region goes into the trade. This means that the price of tobacco in local markets fluctuates. But this very fluctuation can bring Iddrisu profits since he strives to obtain market information to help him decide when to sell the locally processed tobacco, either in pieces or in bulks. When asked how he became so confident in his methods of producing and trading tobacco he explains:⁶

"It's a long story ... I was a young man, I was married at a much younger age and had a child. In order to make money, I frequented local markets, observing what good trade opportunities were there. Just to try, I first bought five bulks of tobacco from a market trader; and sold them when the price went up. The profit enabled me to buy two cattle. After years of buying tobacco, I observed that the good quality tobacco usually came from cattle owners. So, with the profit from tobacco, I started to buy two or three cows each year to increase the herd and experiment with the soil fertilization from their dungs... The challenge was high mortality of cattle, and I looked for a veterinary officer from the Ministry of Agriculture to get advice on vaccination. As I vaccinated my cattle, every year the death toll was minimized – now I tell my children to do the same and show them how to do it."

Currently, Iddrisu owns over 100 head of cattle. In Northern region, where drought is frequent, cattle is considered to be insurance: People survive by selling them when crops fail (Otsuki, Jasaw, and Lolig 2014). This combination of tobacco and cattle constitutes the core adaptive action. To establish this routine, he had reflected on the development of his farms and the workings of local markets for nearly 15 years.

Iddrisu has shared his reflections with his sons and elder brothers. Others in the community saw their practices and imitated them to some extent, but outcomes varied so far because not everyone owned enough cattle. If one does not have enough capital, it is difficult to keep cattle and wait for them to multiply. Availability of grazing land for cattle is also becoming limited due to widespread land property fragmentation, and one cannot increase cattle numbers unlimitedly. This constraint results in inequality between existing cattle owners and nonowners who have difficulty obtaining cattle and securing grazing land.

The case of Iddrisu highlights that, like Adisa, the iterative processes of action and reflection have led to establish the cycle of investment, production, commercialization,

and reinvestment. However, the importance of establishing such a cycle has not been systematically communicated with others beyond their immediate family members, primarily because innovative farmers themselves verbalize their reflections in rather partial manners. As a result, it is difficult to articulate reflection outcomes to nurture collective agency leading to collective action, which should enable them to negotiate for interventions to consolidate this cycle at the community level.

Discussion

The four biographic stories tell us that the iterative processes of individual adaptive actions and reflections are established through observation of different production methods and local markets, investment in new farming methods and crops, and innovation in cattle or shea residue uses. In other words, reflections on individual adaptive actions nurture individual entrepreneurship. The existing community-based strategy such as the community dam (for dry season farming) or introduction of new farming techniques (in combination with the existing innovation) is contributing to this individual entrepreneurship, but it is not facilitating the communication about this entrepreneurship among the individual farmers.

This dearth explains why most of the farmers are reluctant or simply unable to follow these adaptive farmers' examples even if there are community-based strategies in place. There is no systemic sharing of reflections about the importance of the reinvestment or of the strategic use of manure. It seems as if one is not genuinely entrepreneurial, there is no way to catch up. However, as the reflections by these four farmers have shown, if reflections are appreciated by the farmers themselves, they would be more effectively communicating their knowledge and giving tips for others to nurture their adaptive actions. When the majority in a community understands the value of such exchange, a communitywide discussions could take place on how to demand and negotiate new strategies to promote more collective entrepreneurship in such forms as associations and cooperatives. Eventually, a collective entrepreneurship could help to enhance general community resilience by firmly linking individual and collective entrepreneurship.

In general, knowledge of farming by return migrants is seldom valued, as those migrate as agricultural laborers are considered to be poor and uneducated. As the reflections have shown, only Iddrisu actively sought after the governmental help to manage his cattle; others have had little expectation with the formal authorities. As Freire has emphasized, farmers themselves need to reflect on their daily actions and learn to become conscious about their relationships with the larger cultural and policy contexts and about the possibilities to bring out change. Appreciating their own actions is the first step for small farmers to wish to communicate their reflections with others and to be proud as adaptive entrepreneurs. The lack of appreciation by both outsiders and small farmers themselves has been inhibiting the active communication.

The insufficient appreciation is also theoretical. Because of the general neglect of reflexivity as the core capacity to link individual and collective agency or to facilitate self-organization, its importance is not fully integrated in the discussion on how to enhance resilience of the place-based community. Consequently, the potential for individual agency to lead to shape collective action and social transformation is undermined.

In practice, this means that civil society organizations or advocacy movements that help to nurture the iterative processes of actions and reflection remain marginal in introducing community-based adaptation strategies, as most strategies focus on providing new infrastructures or farming techniques. The financial institutions are not readily available for small farmers to experiment with their diversified, specialized, or innovative cropping practices.

Conclusion

In this article, we have examined how individual agency can be linked to community resilience to climate change by drawing on the concept of reflexivity. Based on four life histories of apparently poor farmers in northern Ghana, the article has primarily shown that everyone has agency to reflect on their adaptive actions. The adaptive actions include migration to fertile grounds, diversification or specialization of cash crops; and innovation of farming practices by establishing the cycle of commercialization and reinvestment. The reflections on these actions are communicated with others to a limited extent, and the limitation impedes nurturing of self-organizing collective agency to fully enhance community resilience.

To deal with this limitation entails reframing of the concept of agency and community resilience as reflexivity that leads to communicative resilience. The four farmers' stories have practically mapped out existing knowledge and skills that should be systematically presented and discussed in periodic workshops at the community level. Eventually, as individual farmers become aware of the need to obtain support for their self-organization of production and commercialization, they can invite extension workers and experts who could facilitate the sharing of the knowledge and skills, so that all the small farmers can learn from each other. The support could include demand-driven credit and extension schemes and introduction of cooperativism.

Methodologically, to encourage farmers to reflect and to communicate about the reflections at the community-level requires researchers to engage in participatory (action) research and long-term observation (Ross and Berkes 2014). The research should also pay attention to different types of innovations that take place in men and women's domains as well as in return migrants' domains. In existing scholarship, mobility is often discussed as an outcome of low resilience (Tacoli 2009), but cases of Joe, Kwachi and Adisa have shown that outcomes of mobility are individual adaptive actions and high reflexivity, which are vital for community resilience. Likewise, roles that the gender plays in community resilience deserve more attention, since in places like northern Ghana, types of crops, use of land and animals, and occupations are culturally gender-oriented, and the further participatory research with women must ensure their presence in contributing to enhancing the reflection-based community resilience.

Encouraging exercise of reflexivity and communication of reflections naturally directs our focus toward political agency by which individuals come to collectively address their needs for agricultural interventions or entrepreneurship training for small farmers. In this sense, the interest-based community-building beyond place-based communities should be envisioned in adaptation debates to link place-based resilience both to individual reflexivity and to a wider environmental and development policy agenda. After all, farmers have been adapting not only to climate changes but also to the chronic absence of the state (that also

financially depends on foreign aid and investors). The focus on reflexivity should give an opportunity for the farmers as well as researchers to create a new network-based community of engagement and to emphasize the need to enhance its resilience.

Notes

1. Ghana is a decentralized country, with municipalities and districts as the lowest administrative units designated within 10 regions that constitute the country. The country is also known for the existence of strong chieftaincy system based on ethnic groups in parallel with the modern administrative system.
2. Interview, Tagdo community, 21 March 2015. The local language was translated to English by local research assistants.
3. Interview, Baleufili community, 21 March 2015.
4. Interview, Bankpama community, 22 March 2015.
5. Interview, Baleufili, 23 March 2015.
6. Interview, Tolon, 17 May 2015.

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