

THE ROLES OF LOCAL ASSOCIATIONS IN RAINFOREST CONSERVATION AND LOCAL DEVELOPMENT IN THE DEMOCRATIC REPUBLIC OF THE CONGO

Naoki MATSUURA

School of International Relations, University of Shizuoka

ABSTRACT Community-based local organizations should play key roles in both conservation and development, but local African organizations do not always function effectively on behalf of the local poor people. It is necessary to perform careful on-site investigations of how local organizations were formed, and of how they actually function. This article focuses on community-based local associations in villages adjacent to the forest reserve in the Democratic Republic of the Congo. The author demonstrates (1) the establishment, structure, membership, activities, and socioeconomic role of the local associations, (2) the intra- and intergroup relationships of such associations, and (3) the results of the development projects implemented by local associations. This study found that people in the research site are reorganizing their social structure by participating in the development and conservation practices of local associations during this difficult post-conflict period. It is necessary for conservation agencies to accept their trial-and-error approach and engage in continuous interactions undertaken from a long-term perspective instead of rendering judgments based on immediate results.

Key Words: Community-based local associations; Sustainable development; Nature conservation; Tropical rainforest; Democratic Republic of the Congo.

INTRODUCTION

The tropical rainforests in the Congo Basin have been decreasing rapidly due to the expansion of agricultural lands and the development of commercial logging (Barnes, 1990; Laporte et al., 2007; FAO, 2010; Ernst et al., 2013). Hunting activities have also been intensifying to supply meat to the numerous workers who have immigrated to the forest areas due to the development of logging. Bushmeat trading with town residents has also been increasing due to the availability of logging roads (Wilkie et al., 2000; Laurance et al., 2006; Yasuoka, 2006). Thus, deforestation threatens many wildlife species with extinction, and the empty forest syndrome (Redford, 1992) is becoming a reality (Nasi et al., 2011; Wilkie et al., 2011). In the context of the crisis affecting rainforests, there have been many attempts to enlarge the protected areas and establish effective management systems in central Africa. However, few projects have been successful. In addition to political instability and economic distress, conflict between local people's lifestyles and conservation practices constitutes a major obstacle to the success of conservation efforts.

Since the 1980s, community-based conservation has been emphasized throughout the world, including Africa (Western et al., 1994; Agrawal & Gibson, 2001; Hulme & Murphree, 2001). Based on a comparison of the status of 16 protected

areas in African rainforests, Struhsaker et al. (2005) found that conservation success is strongly correlated with local attitude. Nevertheless, efforts to establish community-based conservation systems remain incomplete (Hackel, 1999; Adams & Hulme, 2001; Barrow & Murphree, 2001; Hulme & Murphree, 2001; Berkes, 2007). Indeed, local people are insufficiently engaged in conservation projects, and they sometimes directly and indirectly resist conservation practices, because these practices restrict their subsistence activities and utilization of natural resources without providing appropriate compensation. To resolve these conflicts and improve local participation in conservation practices, it is necessary to promote local development projects based on sustainable natural resource utilization (Wells et al., 1992; Newmark & Hough, 2000; Mcshane & Wells, 2004). To that end, it is important to organize local people based on an understanding of their local social context (Waylen et al., 2010).

Therefore, community-based local organizations should play key roles in both conservation and development. Since the 1980s, the dawn of participatory development theories, the domain of development studies and practices has devoted considerable attention to local organizations, as they act as an intermediate sector between rural residents and the government or private sector (Chambers, 1983; Esman & Uphoff, 1984; Uphoff et al., 1998; Lewis & Kanji, 2009). As civil societies developed in Africa since the 1980s, local organizations have been considered the institutional representatives of such societies and as replacements for traditional local communities (Fowler, 1991; Levine, 2002; Lewis, 2002). In today's globalized world, the role of local organizations in conservation and development has become increasingly important, because they can relate directly to international organizations without being coopted by the national government of poorly governed countries.

However, local African organizations do not always function effectively on behalf of the local poor people who really need their support. Instead, they tend to occupy a subordinate status with respect to both international organizations and national governments rather than being financially and politically independent. African local non-governmental organizations (NGOs) lack the political and economic power held by those in Asia and Latin America due to centralized and authoritarian state structures. Accordingly, local organizations may actually increase inequality insofar as they benefit local authorities and elites (Cooke & Kothari, 2001; Hearn, 2007; Brass, 2012). Therefore, it is necessary to perform careful on-site investigations of how local organizations were formed, and of how they actually function in their roles of organizing local people, promoting development activities, and contributing to effective conservation systems.

This article focuses on community-based local associations⁽¹⁾ in villages adjacent to the forest reserve in the Democratic Republic of the Congo (DRC). First, the author discusses the establishment, structure, membership, activities, and socio-economic role of the local associations in the research site. Second, the intra- and intergroup relationships of such associations are described based on data collected via participatory research in which the author was an actor engaging in the practices of local associations. Based on comparisons of the development projects implemented by local associations, this article examines approaches to providing

development aid and discusses the activities of outsiders that are most effective for helping local communities. Finally, the author analyzes the results of the projects and discusses the roles of community-based local associations in rainforest conservation and sustainable local development.

RESEARCH SITE AND SUBJECTS

Field research was conducted in the villages of Wamba and Iyondje⁽²⁾ in the Tshuapa District, Equatorial Province, DRC. The residents of this region are Bongando, a Bantu ethnic group with a population estimated at about 450,000–500,000 (Kimura, 1992). Wamba is composed of six settlements containing 5,490 people, and Iyondje includes 10 settlements with roughly the same population⁽³⁾ (Yasuoka et al., 2012). The research villages are surrounded by a mature tropical rainforest and are remote from towns: 80 km from Djolu, the capital of the Territory, and 380 km from Boende, the capital of the District, where domestic flights are available. It is difficult for local people to access the towns due to both long distances and road conditions. The infrastructure of this area was devastated due to the civil war that occurred between the 1990s and 2000s, and it has not yet been restored despite the fact that the war ended in the 2000s. Thus, local people have fewer opportunities to sell cash crops and/or forest products in exchange for modern commodities in town. However, they manage to make the difficult journey to Kisangani, the capital of the Oriental Province, located about 400 km from the village, by foot or bicycle to engage in commercial activities (Kimura et al., 2012).

Japanese researchers have been performing field research on bonobos (*Pan paniscus*) in Wamba since 1973. The Luo Scientific Reserve, which includes Wamba, was established in 1990 to promote bonobo research and conservation. Although no research activities were conducted from 1996 to 2002 because of the civil war (Tashiro et al., 2007), research activities have resumed and are currently ongoing. In 2010, the Iyondje Community Bonobo Reserve was established in Iyondje as a result of collaboration between the local community and an international conservation NGO. Because it is difficult for local people to improve their livelihoods under the serious condition prevailing in the area, this group of researchers has promoted access to local aid, such as the construction of hospitals and the establishment of scholarships, as they have pursued their research. The aforementioned international conservation NGO has also provided development aid to reinforce agricultural activities in the service of reducing the exploitation of forests.

One principal subsistence activity of the people in the research site is slash-and-burn agriculture, as they subsist primarily on agricultural products, especially cassava. Their livelihood is supplemented by fishing, hunting, and gathering. In addition to their dependence on natural resources for their protein intake, they breed livestock such as pigs, goats, sheep, chickens, and duck. However, the protein supply is not stable because the natural resources in the forest near the villages have been gradually decreasing as the utilization of resources for commercial

purposes has intensified (Kimura et al., 2012). In response to this situation, local people have recently been trying to establish community-based local associations to develop cooperative farming, joint breeding, and aquaculture involving tilapia (*Oreochromis niloticus*) (Lingomo & Kimura, 2009; Kimura et al., 2012).

This paper focuses on these local associations to understand recent social changes in local communities, and to explore possible approaches to sustainable development. Field research was conducted on four occasions: February to March 2011, February to March 2012, August to September 2013, and August to September 2014. The author surveyed all of the local associations in Wamba and Iyondje during every research period to determine whether new associations had been established and old ones had disappeared, and to examine the membership and practical activities of each association. Based on an understanding of the aspects of the local contexts that were relevant to the practices of associations, several associations with sufficient resources were selected and supplied with a small amount of funds to promote micro-development projects. To examine the effect of this development aid and to elucidate the appropriate ways of promoting development projects, the author investigated the practical activities involved in the projects, the management status of the projects, and the relationships among the members during the course of the projects.

RESULTS

Local Associations in the Research Site

The first local association in the research site, *Forêt des Bonobos*, was created in Iyondje in 1991 at the suggestion of researchers. Although its aim was to enhance bonobo conservation as well as local development, it was relatively inactive during the 1990s because of the political and economic disorder related to the civil war. After termination of the war in the 2000s, research and conservation activities gradually resumed due to the efforts of outsiders. However, the local infrastructure remained devastated, and the region experienced minimal economic development. Thus, local people decided to establish their own local associations in the second half of the 2000s to improve their ability to earn a livelihood. Consequently, *Association de Développement de Wamba* (ADEWA), which consisted of 30–40 members from all of the settlements in Wamba, was created in 2005. In the late 2000s, researchers and conservation agents promoted development projects compatible with conservation by providing financial and material support, which led to a rapid increase in associations. Although some of these associations were based on kinship ties or traditional mutual financial groups (*likelemba*), others were purpose-oriented groups organized by relatively more educated younger people, such as missionaries and schoolteachers.

Table 1 lists the associations in Wamba and Iyondje between 2011 and 2014. A considerable number of associations were established in Iyondje in 2011 and 2012 for the purpose of receiving financial aid in response to a large-scale agricultural

development project sponsored by the aforementioned international conservation NGO. This, in turn, triggered the development of local associations in the village. Some associations established at that time continue to function today. However, many associations were not well organized and could not continue functioning, and some abandoned their activities immediately after their inception. Four associations (I11, I12, I13, I14) established in 2011 and six associations (I21, I22, I23, I24, I25, I26) established in 2012 do not exist or only exist on paper.

Another feature of the associations in the research site is frequent fission and fusion and reorganization. For example, *Association de Nouvelle Génération de Yasongo* (ANGY [W2]) and *Debout de Wamba pour la Reconstruction* (DWR [W3]) were created by members of ADEWA (W1) in response to conflict among members, which will be discussed below. Several members of *Association de Groupe des Jeunes de Yokose* (AGJY [W4]) also belong to W1. In addition, the principal members of W2 established another association, *Group des Chrétiens de Wamba pour la Conservation de la Nature* (GCWCN [W6]), and most members of W2 and W6 belong to both. In contrast, several small associations in Iyondje have been integrated. For example, *Association de Développement d'Iyondje* (ADI [I30]) was established by several members of *Loiko* (I2), *Association de Développement des Jeunes d'Iyondje* (ADEDI [I5]), *Lisanga* (I8), and *Toyakile* (I19). As the members come from almost all of the settlements in Iyondje, the activities of ADI cover the whole village.

The associations of Wamba and Iyondje were established following opposite patterns. Whereas one large association was initially established and then divided into small ones in Wamba, several small associations were integrated into a larger one in Iyondje. However, organizations in both villages have experienced the same difficulties. That is, local associations cannot function effectively and sustainably if the number of members is insufficient and/or the members are not well organized. At present, residents of the research site are reorganizing their social structure to adapt to development projects by establishing community-based local associations.

Practical Activities of Local Associations

The major activities of the local associations in the research site were collective farming and livestock breeding. Cooperative fishing and tilapia aquaculture were also practiced. Some associations specialized in a type of farming activity, whereas others engaged in multiple activities, such as farming along with livestock breeding (see Table 1).

In terms of farming, many associations cultivated dry-paddy rice in their collective fields. Cassava and maize were also major crops and were not only used for consumption as staple food items, but also for making local whisky (*lotoko*) by distilling it according to the local tradition. In addition, small collective fields were used to grow peanuts, beans, pineapples, and some kinds of vegetables and fruit. Before the civil war, a European company had operated coffee and rubber plantations, but these were destroyed, and no cash crops are currently cultivated. However, one association (W6 in Table 1) has been trying to rehabilitate the oil

Table 1. Local associations in the villages of Wamba and Iyondje

Village	No	Name	Year of establishment	
Wamba	W1	ADEWA	Association de Développement de Wamba	2005
	W2	ANGY	Association de Nouvelle Génération de Yasongo	2006
	W3	DWR	Debout de Wamba pour la Reconstruction	2008
	W4	AGJY	Association de Groupe des Jeunes de Yokose	2013
	W5	AJY	Association des Jeunes de Yasongo	2013
	W6	GCWCN	Group des Chrétiens de Wamba pour la Conservation de la Nature	2013
	W7	GIPFWA	Group des Initiateurs pour la Protection de la Forêt de Wamba	2013
	W8	GJDL	Group des Jeunes pour le Développement de Lingondji	2014
Iyondje	I1	Foret des Bonobos		1991
	I2	Loiko Homme	(life: in Longando)	2006
	I3	Loiko Femme	(life: in Longando)	2006
	I4	ADAPI→AEK	Association pour le Développement Agro-Pastoral d'Iyondje →Association des Eleveurs de Kokolopoli	2008
	I5	ADEDI	Association de Développement des Jeunes d'Iyondje	2009
	I6	Union Fait la Force		2009
	I7	Kanisa	(thought: in Lingala)	2010
	I8	Lisanga	(gathering: in Lingala)	2010
	I9	AFD	Association des Femmes pour le Développement	2010
	I10	Toteya	(We did not know: in Longando)	2011
	I11	Tohomeka	(We will try: in Longando)	2011
	I12	Bolingo	(love: in Lingala)	2011
	I13	APS	Association de Personne Sage	2011
	I14	Lotsindji	(perseverance: in Longando)	2011
	I15	Dimapasi	(to endure pain: in Lingala)	2011
	I16	API→Tokosami Mingi	Association des Pêcheurs d'Iyondje →(We cheat each other: in Lingala)	2011
	I17	AJECUL	Association des Jeunes Cultivateurs	2011
	I18	ODY	Organisation de Développement de Yokondji	2011
	I19	Toyakile	(We wll follow: in Longando)	2011
	I20	Bomengo se Mayele	(richness under intelligence: in Lingala)	2012
	I21	Nguya na Nzambe	(power of God: in Lingala)	2012
	I22	Bomoi	(life: in Longando)	2012
	I23	Yalofili	(name of the settelment)	2012
	I24	Ebandeli	(commencement: in Lingala)	2012
	I25	Mosala Lobiko	(Work is life: in Lingala)	2012
	I26	ACLAYO	Association de Clan de Yolimoosamba	2012
	I27	Vie Future		2012
	I28	Toza wapi	(Where are we?: in Lingala)	2012
	I29	Molende	(perseverance: in Lingala)	2012
	I30	ADI	Association de Développement d'Iyondje	2012
	I31	Mokili Ngonga	(earth and time: in Lingala)	2013
	I32	Koe Sukei		2013

Members	Settlement of members	Legalization	Activities	Status*		
				2012.3	2013.9	2014.9
30–40	the entire village	y	farming	+	–	–
25–30	Yasongo	n	farming, livestock breeding	–	++	++
30	Yayéngé	y	farming, livestock breeding	–	++	++
18	Yokose	n	livestock breeding	–	++	++
15	Yasongo	n	commercial activities	–	++	++
11	Yasongo	n	oil palm cultivation	–	–	–
25	the entire village	n	farming, livestock breeding	–	–	–
7	Lingondji	n	farming, livestock breeding	–	–	–
60–70	the entire village	y	bonobo conservation	++	++	++
15	Yangondé	n	farming, livestock breeding	+	–	–
11	Yangondé	n	farming, fishing	+	–	–
50	Yofala and Yokali	y	livestock breeding	++	++	++
80	the entire village	n	farming	–	–	–
15	Yalofili	n	farming, livestock breeding	+	+	+
7	Bisando	n	livestock breeding	+	+	+
14	Yalisanga	n	farming	++	+	–
15	Yofala and Yokali	n	farming, aquaculture	–	–	–
unknown	Yokali	n	farming	+	–	–
unknown	Yokali	n	farming	–	–	–
unknown	Yofala	n	farming	–	–	–
unknown	Yangondé	n	farming	–	–	–
unknown	Yofé	n	farming	–	–	–
6	Yofala	n	aquaculture	+	+	+
21	Yangondé	n	fishing	+	+	+
5	Yangondé	n	farming	+	+	+
7	Yangondé	n	farming	+	+	+
8	Yotolé	n	farming, livestock breeding	+	+	+
7	Yangondé	n	livestock breeding	–	+	+
6	Yotolé	n	farming	–	–	–
4	Yangondé	n	farming	–	–	–
7	Yalofili	n	farming	–	–	–
5	Yalisanga	n	farming	–	–	–
9	Bisando	n	farming	–	–	–
13	Yangondé	n	farming	–	–	–
8	Yangondé	n	farming	–	+	+
4	Yangondé	n	farming	–	+	+
5	Yotolé	n	livestock breeding	–	+	+
16	the entire village	n	farming	–	++	++
6	Yofala and Yokali	n	livestock breeding	–	+	+
10	Yofala and Yokali	n	farming, livestock breeding	–	–	–

*++: highly active, +: moderately active, –: inactive

palm fields that had been developed in the past. Harvested crops are stored and distributed to association members according to their needs, and some crops are stored until the following planting season to increase production. In addition, products are occasionally taken to the large market near Kisangani to earn small amounts of money. However, as transportation is extremely difficult because of infrastructural problems, the cost-benefit ratio does not favor such endeavors.

Many associations practice joint breeding, raising pigs, goats, sheep, chickens, and duck cooperatively. Each member of these associations must make a contribution to purchase a subscription and pay for the labor involved in breeding. In exchange, members benefit when the livestock are butchered or sold. Although some associations build livestock barns and work intensively, others engage in free-range breeding, which involves lower labor costs and less time. Disease epidemics have been the most serious problem affecting livestock breeding. The region experienced an outbreak of livestock diseases, and a significant number of livestock and poultry died between the second half of 2013 and the first half of 2014. During this period, several associations lost all of their livestock, and the high price of livestock (20,000–30,000 FC⁽⁴⁾ for an adult pig and 40,000–50,000 FC for an adult goat) has made it difficult for them to recover. Although chicken and duck are relatively cheaper, costing 2,000–3,000 FC per individual, breeders of these animals have also found it difficult to recover because they had previously raised many head. Thus, livestock breeding is currently not a robust industry despite the attempts of many associations to engage in it.

A few associations practice fishing activities. The members of one association (I16 in Table 1) that fishes with settled nets cooperatively use nets and dry fish, which they sell at the market in town. This activity does not earn large sums of money, but it is a secure and stable way to earn a small income. The research site has recently introduced aquaculture involving tilapia, and two associations (I15 and I16) have established fishponds and initiated cultivation. However, the success of aquaculture is uncertain, and this endeavor poses many economic and environmental risks.

All associations collect paid subscriptions from members to raise money for their activities. Although the amount differs across associations, the cost is usually 500–1,000 FC per person per week. This reserve fund is used to support collective activities undertaken for communal purposes as well as to help members deal with illness, funerals, and school attendance. However, the associations' financial resources are insufficient to achieve rapid growth, and it is also difficult to attract financial aid from outside.

Another problem affecting local associations is that only a few people understand their purposes and roles. Many people do not want to work for associations without a reward or salary, although doing so might benefit the community. Indeed, as illustrated by the following example, some people do not understand anything about the associations.

Example:

The president of *Forêt des Bonobos* was asked by a man to help an association he administers. However, when the president inquired about the members and

activities, he learned that it consisted of only one member, who was the very man who asked for the help, and that the activity of the association was farming in his personal field.

It is currently very difficult for local associations in the research site to stably sustain their development practices and continue to progress without financial support from outside. It is also difficult to improve local understanding of the roles and aims of local associations.

Development Projects

Taking the difficult local situation into consideration, the author provided small amounts of money to establish micro-development projects to reinforce the capacities of local associations, and to provide anthropological data about the associations. After the interview survey and observations of the associations, the author identified those associations that were well organized.

Attempt at joint pig breeding

In March 2012, the author attended several board meetings of ADEWA (W1 in Table 1) to gather information about their proposal for a project involving the joint breeding of pigs. According to their budget, the author would provide 360,000 FC and ADEWA members would contribute 18,000 FC, 5% of the budget. The budget allocated approximately 240,000 FC for the construction of a pigpen, 100,000 FC for the purchase of three animals, and 40,000 FC for other materials.

Immediately after the author left the village, the association began the project by constructing a pigpen from local materials: bamboo for the framework and wall and raffia leaves for the roof. Afterward, they purchased three females, whom they attempted to raise. However, despite their efforts, it was difficult for the infants to thrive. In addition, the initial adult females died after delivery. ADEWA members sold the meat and purchased other animals with the proceeds, but all of the pigs eventually died in an epidemic. These data are summarized in Table 2.

Given these results, it would be difficult to consider this project a success. One significant contributor to the eventual outcome was the vulnerability of the pigs to the disease to which they eventually succumbed. Indeed, their vulnerability may have been especially high because they had been introduced to this area relatively recently. In addition, local people had less experience with pigs compared to goats and sheep. Indeed, even those with pigs did not use pigpens, allowing the pigs to range freely. However, given the potential usefulness of pigs for many local development projects (i.e., they reproduce quickly and are rich in protein and fat), some ADEWA members proposed a pig-breeding project after with learned about this activity elsewhere. However, intensive pig breeding was not suitable for the local environment and the actual livelihood situation at the research site. In addition to ecological factors, social factors also impeded the progress of the local development project, as demonstrated by the following example.

Development aid by a European activist

In addition to the author's efforts, several development projects were sponsored

Table 2. Process of the joint pig breeding project

Month	Event	Number of individuals		Balance (FC)
		Adult females	Infants	
Mar 2013	commence of the project (construction of pigpen)			75,000
Apr 2013	purchase of three adult females and rental of one adult male	3		0
	death of one adult female 1 day of arrival; butchered and sold	2		25,000
	purchase of one adult female to compensate for the loss	3		0
May 2013	birth of two infants and death only after a few days	3	2→0	0
Jun 2013	birth of four infants and death of two of them; butchered and sold	3	4→2	0
	death of one adult female after delivery; butchered and sold (20,000 FC)	2	2	20,000
Aug 2013	purchase of one adult female (15,000 FC) and animal medicine (5,000 FC)	2	2	0
	death of two adult females kept from the beginning	0	2	0
	additional financial aid (50,000 FC) from outside	0	2	50,000
	purchase of two adult females	2	2	0
Oct 2013	death of all animals due to epidemic; partially sold	0	0	78,000

by a European activist who had stayed in Wamba for about six months during the first half of 2012. He frequently organized workshops for local people to clarify local problems and empower them, and he also tried to reorganize members of ADEWA to facilitate the completion of development projects. Finally, he applied for development aid and received approximately 9,000 US dollars from an external source. He provided ADEWA with the funds and helped to start four projects: chicken breeding; using a canoe with an electric motor and solar panels to travel across rivers; mills for cassava and maize transformation; and miniature solar panels for charging batteries. Although these projects operated effectively with the support and advice of the activist, almost all collapsed after he left the village.

The president of ADEWA, who had been away at the university, temporarily returned to Wamba in November 2011. Upon learning of the projects undertaken by his association, he demanded his 10% share of the funds from the other members. He also proposed to organize a project to transport local whiskey via canoe to sell in town. However, the vice president and several members refused to release his share and participate in the transportation project. The president then filed a lawsuit at a local court, and the police seized the materials. Finally, the vice president and other members were forced to pay a penalty.

These projects were abandoned, and several members, including the vice president and secretary, left ADEWA. Although the president's actions were consistent, in part, with the administrative procedures and rules of the association, his aggressive tactics led to disorder. It is difficult to conclude that he considered the common benefit of association members.

This discord is presumably fundamentally rooted in the social organization of the local people. The Bongando follow a patrilineal lineage system, and there are clear social distinctions among different lineages. Because ADEWA covers all Wamba villages, there are members from multiple lineages in a single association. As the president and the vice president were from very different lineages, their dispute was a manifestation of the social structure rather than a personality conflict.

The development projects funded by the activist seemed inappropriate despite the great effort and careful planning he devoted to them. First, the scale of projects was too large for the local association to manage appropriately, and the materials distributed to the members were too complicated for local people to use and maintain. There was no way and no need to use a canoe with an electric motor, because the electric power available was not sufficient for a long 100 km river journey given the local current. Second, no supervision or continuous follow-up was provided. The activist left after the materials had been distributed and was unable to return. Third, the projects were developed without giving sufficient consideration to the local cultural and social context. As a result, most materials have been stored and are not in use.

Improvement of projects

Based on the lessons learned from the failure of previous development projects, the author has continued to discuss ways to improve development projects by adapting them to local social and ecological conditions. To avoid the risk of livestock loss from infectious diseases, goats and sheep, which are more resilient and better adapted to the environment, were added to livestock breeding projects. It was decided that animals should be maintained in free-range or partially free-range settings during the day, and kept in the livestock barn at night. To reduce the uncertainty of breeding, diverse projects were undertaken, and farming, fishing, and aquaculture were added. In addition, each project was designed to be small in scale from both a financial and a practical perspective. The projects were also simplified by eliminating complicated and expensive materials.

In response to social problems, the author chose smaller and better-organized associations. It was also decided that the maintenance of a balance among the geographic locations of the associations would spread the benefits to a larger group of people and not limit the participants to those who may become the source of social conflict among settlements or villages. Although the author could not be a constant presence in the research villages, he has visited regularly each year and maintains occasional contact with local informants via electronic mail, which is available in Iyondje, the site of a base camp of an international NGO. The author's colleagues have also checked on the projects during their visits to the research site.

During the 2013 research period, the author financed three associations in Wamba: 100 US dollars was provided to ANGY (W2 in Table 1) for goat breeding, 100 US dollars was provided to DWR (W3) for sheep breeding, and 40,000 FC was provided to AGJY (W4) for pig breeding. When the author visited the research site in August 2014, he found out that all of these projects had been maintained despite a major epidemic affecting livestock. Although the number of animals had not increased, DWR had purchased two sheep and kept them in a free-range setting, and ANGY had purchased two goats that had been maintained in stable condition. AGJY started with two adult females, and had two adult females and four piglets after several population changes due to deaths, births, and additional purchases.

The author subsequently financed several projects during the research period in 2014: 100 US dollars was provided to ANGY (W2 in Table 1) for the aquaculture of tilapia, 100 US dollars was provided to DWR (W3) for the collective farming of rice, and 40,000 FC was provided to GCWCN (W6) to rehabilitate and farm oil palm. Newly established associations were provided with 20,000 FC for a trial project involving pig breeding (GIPFWA [W7]) and the collective farming of rice (GJDL [W8]).

The author has also collaborated with associations in Iyondje. An integrated association devoted to agricultural activities, known as ADI (I30 in Table 1), was established by individuals with the experience and motivation to reorganize small associations. The umbrella association has four branches in different settlements, and each has its own crop field. After observing all of the sites of the four branches and engaging in discussions with members of each association, the author accepted their proposal to provide 200 US dollars so they could implement their proposal to engage in the collective farming of rice in 2013. Although there was a small quarrel between branches, they distributed the funding to each branch fairly and have been able to sustain the project, eventually harvesting hundreds of kilograms of rice.

To diversify projects and balance localities, the author selected two other associations to aid: a large association was provided with funding for livestock breeding (I4 in Table 4), and a fishermen's association was provided with funding for fishing and aquaculture (I16). When the meeting with I30 was held in 2013, members of I4 and I16 also participated. All of the participants discussed local economic and social problems, and agreed about the importance of the roles played by local associations. The author provided 150 US dollars for goat and sheep breeding to I4, and 50 US dollars was provided to I16. I4 decided to collaborate with five settlement-based small associations in Iyondje (I7, I19, I20, I29, I31) to breed livestock. Although they experienced a serious epidemic between late 2013 and early 2014 that led to significant losses of animals, they managed to sustain their activities and have attempted to replenish their inventory of livestock. I19 bought 32 fishing nets, and developed the ability to catch fish on a regular basis. They also established fishponds and bought young tilapia. Given these results, the author agreed to finance three associations during the following research period, in 2014.

DISCUSSION

This article focused on community-based local associations in rural villages adjacent to a protected area in the DRC. These associations are expected to play important roles in rainforest conservation and in facilitating sustainable local development. This study found that many local associations had been established at the research site since the 2000s, following the termination of the civil war. Although Kimura et al. (2012) also recently found the same trend in the same area, they primarily examined local NGOs in the capital of the Territory, which is a center of local government. In contrast, the present study investigated the situation in rural villages. Thus, the trend towards local associations has been rapidly gaining momentum and has spread to rural villages in only a few years.

This phenomenon initially emerged from the efforts and in the image of external sources, such as international NGOs and researchers involved in the global conservation movement; these actors emphasize the importance of organizing communities (Western et al., 1994; Agrawal & Gibson, 2001; Hulme & Murphree, 2001; Berkes, 2007). Global conservation interests have been intensively focused on the DRC because armed conflicts have devastated its previously rich biodiversity (Milburn, 2014). The research site suffered significant losses in both the number of bonobo groups and their size, possibly because of the increased hunting pressure during the war (Hashimoto et al., 2008; Lingomo & Kimura, 2009; Furuichi et al., 2012). Local people migrated into interior forests to escape the conflict, which substantially increased the area of the forest that had been cleared (Nackoney et al., 2014). The increase in the number of associations reflects the conservation efforts of NGOs and researchers in that they provide development aid to reduce forest exploitation in the post-conflict period.

However, this increase in the number of associations does not mean that their conservation and development efforts have been successful. Rather, such efforts sometimes cause local conflict. Indeed, numerous associations were established at the research site during the 2000s, but they were not sufficiently organized and underwent frequent fission and fusion. Local people did not have an adequate understanding of the purposes and roles of associations, because these groups spread rapidly without sufficient time for each to reach a mature level of functioning. As a result, many associations were abandoned or disappeared after a period of poor functioning. In addition, each association suffered from managerial and organizational problems. In the case of the development aid provided by the European activist, the projects ended in failure largely because of a confrontation among members.

Although local organizations are often expected to function as institutional representatives of civil society, replacing traditional local communities (Fowler, 1991; Levine, 2002; Lewis, 2002), this conceptualization is not applicable to the research site. This perspective has also been criticized, because it is based on a Western formulation of civil society and is a product of the newly globalized, neoliberal form of capitalism (e.g., Comaroff & Commaroff, 1999). These associations rest on two foundations: the traditional social bonds based on kinship or mutual help groups that include elders and the purpose-oriented relationships

initiated by relatively highly educated young people. Thus, they cannot be considered either traditional or modern; instead, they are hybrid organizations consisting of a variety of interconnected actors. It is therefore important to consider not only the practical skills but also the social backgrounds of members.

It is also noteworthy that although associations were initially established by externally based conservation groups, local people were also strongly motivated to form such associations to improve their livelihoods in the context of the severe local political and economic conditions. Indeed, some associations were organized gradually, enabling local people to increase their understanding of their roles and purposes. Thus, it is possible for community-based local associations in the research site to play important roles in conservation and development. However, this requires financial support from outside that is allocated base on the local social context (Waylen et al., 2010). The aforementioned projects, which involved a variety of actors (including the author), provide valuable lessons for future attempts.

Specifically, the scale and purview of projects should be appropriate for and manageable by local people. Although they should operate under the direction of local people, an external supervisor or advisor should review projects on a continuing basis. The paradigm of local participation and community-based development and conservation originated in the West (Agrawal & Gibson, 2001; Cooke & Kothari, 2001), and this model cannot always be adapted to local socioeconomic situations. It is therefore important that conservation and development agencies understand the local culture and social structure so that they can analyze the potential effects of projects and address possible problems. The integration of development and conservation projects within local societies require communication and discussion among the relevant parties (Folke et al., 2005; Stern, 2005; Berkes, 2007).

In addition to the commitment of different actors, the success of development and conservation projects requires political stability and good governance. Issues related to whether development projects are sustainable and/or destructive to biodiversity also demand careful analysis. People in rural villages in the DRC are reorganizing their social structure by participating in the development and conservation practices of local associations during this difficult post-conflict period. Thus, it is necessary for conservation agencies to accept their trial-and-error approach and engage in continuous interactions undertaken from a long-term perspective instead of rendering judgments based on immediate results.

ACKNOWLEDGEMENTS This study was financially supported by Grant-in-Aid for JSPS Fellows (No. 10J02340) and JSPS Grant-in-Aid for Scientific Research (No. 24810021 and No. 26760008 to the author, and No. 22241057 headed by Professor Daiji Kimura). I am grateful to the Centre de Recherche en Ecologie et Foresterie (CREF) and Ministère de la Recherche Scientifique (MIN) for permission to work in the Luo Scientific Reserve in DRC. I thank Prof. Daiji Kimura, Prof. Takeshi Furuichi, Mr. Hiroshi Masuda, Mr. Ryota Yamaguchi, and other members of the research team for their kind support. Finally, I would like to thank the people in Wamba and Iyondje villages who supplied me with information and great help in the field.

NOTES

- (1) Hereafter, the voluntary groups organized by local people are described as “(community-based) local associations” because local people normally use the French term *association*.
- (2) “Village” refers to a *Groupeement* in the local administrative structure.
- (3) “Settlement” refers to a *Localité* in the local administrative structure. Wamba is composed of five settlements: Yayéngé, Yasongo, Yowala, Yopete, and Yokose. Iyondje is composed of 10 settlements: Yofala, Yokali, Yangondé, Yolalia, Yofé, Yotolé, Yalofili, Bisando, Bolingo, Yalisanga.
- (4) This term means “Franc Congolais,” the currency of the DRC; one US dollar is equal to approximately 920 FC. Dollars are not available at the research site, but it is possible to exchange 900 FC for one US dollar in Djolu, the capital of the Territory.

REFERENCES

- Adams, W.M. & D. Hulme 2001. If community conservation is the answer, what is the question? *Oryx*, 35: 193–200.
- Agrawal, A. & C.C. Gibson. 2001. *Communities and the Environment: Ethnicity, Gender, and the State in Community-based Conservation*. Rutgers University Press, New Brunswick.
- Barnes, R.F.W. 1990. Deforestation trends in tropical Africa. *African Journal of Ecology*, 28(3): 161–173.
- Barrow, E. & M. Murphree 2001. Community conservation: From concept to practice. In (D. Hulme & M. Murphree, eds.) *African Wildlife and Livelihoods: The Promise and Performance of Community Conservation*, pp. 24–37. James Currey, Oxford.
- Berkes, F. 2007. Community-based conservation in a globalized world. *Proceedings of the National Academy of Sciences in the United States of America*, 104(39): 15188–15193.
- Brass, J.N. 2012. Why do NGOs go where they go? Evidence from Kenya. *World Development*, 40(2): 387–401.
- Chambers, R. 1983. *Rural Development: Putting the Last First*. Longman, London.
- Comaroff, J.L. & J. Comaroff 1999. *Civil Society and the Political Imagination in Africa: Critical Perspectives*. University of Chicago Press, Chicago.
- Cooke, B. & U. Kothari 2001. *Participation: The New Tyranny?* Zed Books, New York.
- Ernst, C., P. Mayaux, A. Verhegghen, C. Bodart, M. Christophe & P. Defourny 2013. National forest cover change in Congo Basin: Deforestation, reforestation, degradation and regeneration for the years 1990, 2000 and 2005. *Global Change Biology*, 19(4): 1173–1187.
- Esman, M.J. & N.T. Uphoff 1984. *Local Organizations: Intermediaries in Rural Development*. Cornell University Press, Ithaca.
- Folke, C., T. Hahn, P. Olsson & J. Norberg 2005. Adaptive governance of social–ecological systems. *Annual Review of Environmental Resources*, 30: 441–473.
- Food and Agriculture Organization of the United Nations (FAO) 2010. *Global Forest Resources Assessment 2010: Main Report*. FAO, Rome.
- Fowler, A. 1991. The role of NGOs in changing state–society relations: perspectives from eastern and southern Africa. *Development Policy Review*, 9(1): 53–84.
- Furuichi, T., G. Idani, H. Ihobe, C. Hashimoto, Y. Tashiro, T. Sakamaki, M.N. Mulavwa, K. Yangozene & S. Kuroda 2012. Long-term studies on wild bonobos at Wamba, Luo Scientific Reserve, DR Congo: Towards the understanding of female life history in a male-philopatric species. In (P.M. Kappeler & D.P. Watts, eds.) *Long-term Field Studies of Primates*, pp. 413–433. Springer, Heidelberg.

- Hackel, J.D. 1999. Community conservation and the future of Africa's wildlife. *Conservation Biology*, 13(4): 726–734.
- Hashimoto, C., Y. Tashiro, E. Hibino, M. Mulavwa, K. Yangozene, T. Furuichi, G. Idani & O. Takenaka 2008. Longitudinal structure of a unit-group of bonobos: Male philopatry and possible fusion of unit-groups. In (T. Furuichi & J. Thompson, eds.) *The Bonobos: Behavior, Ecology, and Conservation*, pp. 107–119. Springer, New York.
- Hearn, J. 2007. African NGOs: The new compradors? *Development and Change*, 38(6): 1095–1110.
- Hulme, D. & M. Murphree 2001. *African Wildlife and Livelihoods: The Promise and Performance of Community Conservation*. James Currey, Oxford.
- Kimura, D. 1992. Daily activities and social association of the Bongando in central Zaire. *African Study Monographs*, 13(1): 1–33.
- Kimura, D., H. Yasuoka & T. Furuichi 2012. Diachronic changes in protein acquisition among the Bongando in the Democratic Republic of the Congo. *African Study Monographs Supplementary issue*, 43: 161–178.
- Laporte, N.T., J.A. Stabach, R. Grosch, T.S. Lin & S.J. Goetz 2007. Expansion of industrial logging in central Africa. *Science*, 316(5830): 1451.
- Laurance, W.F., B.M. Croes, L. Tchignoumba, S.A. Lahm, A. Alonso, M.E. Lee, P. Campbell & C. Ondzeano 2006. Impacts of roads and hunting on central African rainforest mammals. *Conservation Biology*, 20(4): 1251–1261.
- Levine, A. 2002. Convergence or convenience? International conservation NGOs and development assistance in Tanzania. *World Development*, 30(6): 1043–1055.
- Lewis, D. 2002. Civil society in African contexts: Reflections on the usefulness of a concept. *Development and Change*, 33(4): 569–586.
- Lewis, D. & N. Kanji 2009. *Non-governmental Organizations and Development*. Routledge, London.
- Lingomo, B. & D. Kimura 2009. Taboo of eating bonobo among the Bongando people in the Wamba region, Democratic Republic of Congo. *African Study Monographs*, 30(4): 209–225.
- McShane, T.O. & M.P. Wells (eds.) 2004. *Getting Biodiversity Projects to Work: Towards More Effective Conservation and Development*. Columbia University Press, New York.
- Milburn, R. 2014. The roots to peace in the Democratic Republic of Congo: Conservation as a platform for green development. *International Affairs*, 90(4): 871–887.
- Nackoney, J., G. Molinario, P. Potapov, S. Turubanova, M.C. Hansen & T. Furuichi 2014. Impacts of civil conflict on primary forest habitat in northern Democratic Republic of the Congo, 1990–2010. *Biological Conservation*, 170: 321–328.
- Nasi, R., A. Taber & N. van Vliet 2011. Empty forests, empty stomachs? Bushmeat and livelihoods in the Congo and Amazon Basins. *International Forestry Review*, 13(3): 355–368.
- Newmark, W.D. & J.L. Hough 2000. Conserving wildlife in Africa: Integrated conservation and development projects and beyond. *Bioscience*, 50(7): 585–592.
- Redford, K.H. 1992. The empty forest. *BioScience*, 42(6): 412–422.
- Stern, P.C. 2005. Deliberative methods for understanding environmental systems. *BioScience*, 55(11): 976–982.
- Struhsaker, T.T., P.J. Struhsaker & K.S. Siex 2005. Conserving Africa's rain forests: Problems in protected areas and possible solutions. *Biological Conservation*, 123(1): 45–54.
- Tashiro, Y., D. Kimuram & B. Lingomo 2007. Habitat changes and decreases in the bonobo population in Wamba, Democratic Republic of the Congo. *African Study Monographs*, 28(2): 99–106.
- Uphoff, N.T., M.J. Esman & A. Krishna 1998. *Reason of Success: Learning from Instructive Experiences in Rural Development*. Kumarian Press, West Hartford.

- Waylen, K.A., A. Fischer, P.J.K. McGowan, S.J. Thirgood & E.J. Milner-Gulland 2010. Effect of local cultural context on the success of community-based conservation interventions. *Conservation Biology*, 24(4): 1119–1129.
- Wells, M., K. Brandon & L. Hannah 1992. *People and Parks: Linking Protected Area Management with Local Communities*. World Bank, Washington D.C.
- Western, D., S.C. Strum & R.M. Wright 1994. *Natural Connections: Perspectives in Community-based Conservation*. Island Press, Washington D.C.
- Wilkie, D.S., E. Shaw, F. Rotberg, G. Morelli & P. Auzel 2000. Roads, development, and conservation in the Congo Basin. *Conservation Biology*, 14(6): 1614–1622.
- Wilkie, D.S., E.L. Bennett, C.A. Peres & A.A. Cunningham 2011. The empty forest revisited. *Annals of the New York Academy of Sciences*, 1223: 120–128.
- Yasuoka, H. 2006. The sustainability of duiker (*Cephalophus spp.*) hunting for the Baka hunter-gatherers in southeastern Cameroon. *African Study Monographs Supplementary Issue*, 33: 95–120.
- Yasuoka, H., D. Kimura, C. Hashimoto & T. Furuichi 2012. Quantitative assessment of livelihoods around great ape reserves: Cases in Luo scientific reserve, DR Congo, and Kalinzu forest reserve, Uganda. *African Study Monographs Supplementary Issue*, 43: 137–159.

————— Accepted February 22, 2015

Author's Name and Address: Naoki MATSUURA, *School of International Relations, University of Shizuoka, Yada 52-1, Suruga-ku, Shizuoka 422-8526, JAPAN.*
E-mail: n-matsuura [at] u-shizuoka-ken.ac.jp