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ABSTRACT African hunter-gatherers are one of the most vulnerable groups of people in the world today and have an extremely low social status. Their human rights have come under threat because of political and economic problems. International agencies, governmental agencies, and non-governmental organizations (NGOs) have been providing them with humanitarian assistance in order to protect their customary rights and improve their lives. This article focuses on pressures facing central African hunter-gatherers, also known as Pygmies. Both exploitation of natural forest resources and forest conservation programs have forcibly displaced them from their homelands, where they have lived and carried out subsistence activities. Some of them have become highly marginalized in the region due to unstable political situations. However, the government gives them little support to manage their livelihoods. Although various actors have provided humanitarian assistance, it is not always sufficient to help them earn a proper living. I describe examples of humanitarian crises among Pygmies and point out problems they face in relation to humanitarian aid. Then, I discuss ways to improve humanitarian assistance projects based on a local point of view.

Key Words: Hunter-gatherers; Central African rainforests; Humanitarian crises; Inter-ethnic relationships.

INTRODUCTION

There are various groups of hunter-gatherers in Africa with a nomadic lifestyle who depend highly on natural resources for their livelihoods (Lee & DeVore, 1968; Barnard, 2004). However, hunter-gatherer societies have been drastically changing, particularly since the second half of the 20th century. They have been influenced by various external actors such as governments, development agencies, NGOs, and foreign companies (Schweitzer et al., 2000; Kent, 2002; Widlok & Tadesse, 2005). In the process, many of them have been marginalized as political and economic minorities. Some were expelled and forced to resettle far from their homelands owing to government policies. Development projects to exploit natural resources and nature conservation programs have displaced hunter-gatherers from their native lands. In addition, they have been victims of civil wars and political instability in many regions because they are vulnerable, both politically and economically.

Hunter-gatherers in central African rainforests, or Pygmies, experienced considerable social changes in the second half of the 20th century and have been facing problems of marginalization (IRIN, 2006; Lewis, 2006; Wodon et al., 2012; Hewlett, 2014). On the one hand, forest exploitation projects have spread to local
communities deep in the forest, while on the other hand, rainforest conservation programs have developed to a great extent; both threaten Pygmies’ livelihoods. A large number of Pygmies have been evicted from their homes due to expanded logging, mining, and plantation. Forest conservation programs do not always benefit Pygmies, who depend highly on forest natural resources in protected areas. As a “side effect” of conservation, they have been expelled from their native lands without compensation or any concern on the part of the government. There have also been long-term, large-scale civil wars in some central African countries, such as the Democratic Republic of the Congo (DRC), and Pygmies are always primary victims of violence and discrimination related to political instability.

To counteract the serious issues facing Pygmies, many organizations have made efforts to provide humanitarian assistance (Msoka, 2007). United Nations (UN) agencies, national and regional groups, and various types of NGOs have offered support to fulfill their basic human needs. They have also helped Pygmies find new land and ensured that their communities become sustainably integrated. However, these endeavors are not always sufficient due to bad governance, complex power relations, and a lack of deep consideration for the characteristics of their lifestyle and social organization (Wodon et al., 2012).

In general, the Pygmy lifestyle is semi-nomadic and closely related to the forest; their residence patterns and social organization are highly flexible because of nomadism (Hewlett, 2014). Their societies, similar to those of many other hunter-gatherers, are characterized as egalitarian, based on food sharing and mutual aid. Furthermore, they have less social hierarchy than other groups (Hewlett, 2014). Pygmies have long been interacting with neighboring farmers and established symbiotic relationships. Although their lifestyle and social organization have been changing recently, such traits remain deeply rooted in their culture. The interethnic connections with neighboring farmers are crucial for them, even if these relationships have been shifting along with changes in their lifestyle (Takeuchi, 2014; Matsuura, 2015; 2016).

As for protecting human rights, their traditions, such as the customary land-use system, joint ownership, and nomadic lifestyle, do not fit within the context of modern legal frameworks. Moreover, they are politically vulnerable, because there is little political representation and few institutions in their societies that can defend their rights. Despite the considerable number of ethnographic studies—including the author’s (Matsuura, 2015; 2016)—on Pygmy social organization, forest-related culture and livelihood, and interethnic relations with neighboring groups, the findings have not been sufficiently implemented in humanitarian assistance for Pygmies.

In this article, the author focuses on the humanitarian crises facing Pygmies and examines ways to support them. First, several major obstacles, including the exploitation of natural resources, forest conservation programs, civil war, and political instability are reviewed. Second, the author illustrates the current situation of humanitarian aid and points out its defects. Third, approaches for improving humanitarian assistance programs are discussed, taking into account the Pygmies’ social context and cultural characteristics revealed in previous ethnographic studies.
HUMANITARIAN CRISES AMONG PYGMIES

I. Exploiting Natural Resources for Development

While the rainforest in the Congo Basin is essential to Pygmies’ survival, it is also important for governments and private companies. It provides a rich repository of natural assets such as timber, mining materials, and genetic resources. Logging operations were already under way in the 1960s, but greatly increased in the 1970s and 1980s as foreign companies advanced their operations. Logging activities have expanded into much deeper forest areas since the mid-1990s due to sharp falls in the cost of transport and employment, which resulted from the regional currency (the CFA franc) becoming devalued by 50% in 1994 (Ichikawa, 2006).

Logging operations have negatively impacted both the natural environment and Pygmies’ livelihoods through deforestation, along with the construction of roads and logging activities. Wildlife habitats have been disappearing rapidly. At the same time, a huge influx of logging laborers and an expansion of the bushmeat trade has endangered some wildlife species. The deterioration of forests and wildlife threatens not only Pygmies’ daily lives (which highly depend on natural forest resources in terms of diet and medicine), but also their cultural identity, which is closely tied to the forest (Ichikawa, 2014). In addition, logging operations tend to harm relationships between Pygmies and neighboring farmers. According to Hattori (2014), who presented a case of the Baka Pygmies and farmers in southern Cameroon, almost all the locals hired by logging companies were farmers. The farmers were employed on a monthly basis while a few Baka had daily contracts. Farmers earned twice the amount of daily wages as the Baka. As for paying logging concessions to local communities, farmer communities received ten times more than the Baka. Economic inequality between the two ethnic groups has grown and the Baka have become more dependent on the farmers in the political realm (Hattori, 2014).

Another example of a negative impact of development projects on Pygmies’ livelihoods is the Chad-Cameroon pipeline project, which was implemented along the coastal area of Chad and Cameroon in the early 2000s (Endeley, 2010; Horta, 2012; Pemunta, 2013). The international consortium, which included the World Bank, invested about US $4.2 billion to construct a pipeline longer than 1,000 km. The oil revenue was initially meant to help alleviate poverty and build capacity among the local population, which includes Bagyelyi Pygmies. However, the project led to serious environmental degradation and destroyed local livelihoods without sufficiently compensating the victims; furthermore, gender inequality of women who could not receive as much compensation as men and marginalization of the Bagyelyi who have been local minorities grew.

Serious violations of Pygmies’ human rights have also occurred in the areas where mining operations are carried out. Similar to cases of logging operations, there are land-related conflicts around concessions. In addition, environmental degradation such as water and air pollution, soil erosion, and the contamination of chemicals and metals threatens local people’s survival (Hilson, 2002; Spiegel,
these circumstances are similar to logging cases where mining projects reinforce the Pygmies’ inequality and marginalization. In the case of Sangha Trinational, a conservation complex that encompasses Cameroon, the Central African Republic (CAR), and the Republic of the Congo (RC), the Baka Pygmies earn considerably less income from mining compared to migrant miners, and there is no institutional arrangement to provide them with better skills, capital, and education (Ingram et al., 2011; Schure et al., 2011).

In general, any type of development project that exploits natural resources tends to threaten Pygmies’ livelihoods because it deprives them of land and damages the forest and wildlife, which the Pygmies rely on for their subsistence. Projects only benefit the local governments and foreign private companies. However, Pygmies do not have effective means to protect their land rights or alternative lifestyles due to their political and economic weakness. There are many cases where potential disparities in the local society are reinforced and Pygmies become increasingly marginalized as a result of development projects.

II. Forest Conservation Programs

While the exploitation of natural resources has expanded and many wildlife species have become endangered, rainforest conservation programs by governments, international agencies, and NGOs have developed since the 1980s in central Africa. There have been many attempts to enlarge protected zones and establish effective management systems. The Central African Forests Commission (COMIFAC) was created in 1999 to coordinate regional forest and environmental policy. A multi-stakeholder partnership called the Congo Basin Forest Partnership (CBFP) was launched in 2002 to enhance natural resource management and improve the standard of living in the Congo Basin (CBFP, 2005). The Forest Carbon Partnership Facility (FCPF) is a global alliance established in 2007 that focuses on Reducing Emissions from Deforestation and Forest Degradation (REDD+) and enhancing forest carbon stocks.

Every contemporary organization and conservation project follows the paradigm of community-based conservation, which promotes local participation and careful consideration of native communities after examining lessons of failure in top-down conservation in the mid-20th century (Western et al., 1994; Hulme & Murphree, 2001). However, it is not easy for local people in central Africa, and Pygmies in particular, to acquire the power of decision-making and enjoy the benefits of conservation (Ichikawa 2006; 2014); it sometimes causes local conflicts and even human rights violations. Some social scientists and activists have criticized that in the process of creating national parks, a large number of locals have been forcibly or involuntarily displaced, as well as severely impoverished (Brockington & Igoe, 2006; Brockington et al., 2006; Cernea & Schmidt-Soltau, 2006, Schmidt-Soltau, 2003; 2009; Schmidt-Soltau & Brockington 2007).

Regarding human rights violations in conservation practices, there have been reports of violent abuse against the Baka Pygmies in anti-poaching operations in Cameroon. According to statements by Survival International (SI), a UK-based human rights NGO, the Baka were accused of “poaching” when hunting to feed
their families; they faced arrest, beatings, torture, and even death threats from heavily armed eco-guards. SI criticizes the World Wildlife Funds for Nature (WWF) since it partly funds and equips anti-poaching squads, and complained to the Organisation for Economic Co-operation and Development (OECD).

Oishi et al. (2015) reported on the operation conducted in their research village inhabited by the Baka based on onsite interviews. Various objects belonging to the villagers were confiscated such as guns, metal cables for snare hunting, and even machetes (which are not used for hunting but for daily tasks), despite that the villagers were not expert elephant poachers. Some people were tortured and severely damaged both physically and mentally. Human rights violations due to “militarized conservation” are on the rise (Duffy, 2014). Very recently, there have been reports that the Mbuti Pygmies are threatened by aggressive conservation activities in Virunga National Park in the DRC (Inter Press Service, 2016).

Although conservation is conceptually contrary to exploitation, both practices on the ground lead to nearly the same results: Pygmies’ livelihoods are endangered and discrimination is reinforced. Management plans are decided in top-down ways, and it is extremely difficult for Pygmies to be actively involved in them.

III. Civil Wars and Political Instability

The gravest threats to Pygmies’ human rights are abuses and massacres related to civil wars and political instability. Pygmies have been the primary victims of violence and discrimination due to their political and economic vulnerability in many regions where the security situation is precarious. Human rights organizations and UN agencies publish many reports on these issues (e.g., Human Rights Watch, 2003; IRIN, 2006; Pottier, 2007; USAID, 2012; ACAPS, 2015; UN-OCHA, 2015). In the case of the genocide in Rwanda in 1994, 30% of Rwandan Twa Pygmies were killed or died. During the civil war in the DRC, which lasted from the 1990s to the 2000s, many Pygmies, especially women and children, were victims of violence, rape, and even cannibalism. Some adult male Pygmies were forcibly recruited as soldiers for the war. In the 2013 coup d’état in the CAR, 400,000 people were internally displaced, and 460,000 became refugees. Quantitative data about each ethnic group is lacking, but it is possible that a large number of Pygmies were included.

The most fundamental aspect of human rights violations during civil wars is that they leave long-lasting damage. Although dozens of years have passed since the genocide in Rwanda, the Twa Pygmies have not seen the same level of peace and security as previously (Beswick, 2011; Hartley, 2015). They suffer poverty and discrimination in areas such as education, housing, and employment; some must live by begging. The Rwandan government has attempted to create an inclusive national identity by rejecting ethnic categories in their post-genocide reconstruction policy, which took account of the brutal and tragic genocide produced by ethnic conflict. However, it has had negative consequences for the Twa, because their ability to participate in politics and advocate their rights is limited. They are unable to assert themselves as ethnically unique indigenous people to benefit from international human rights law (Beswick, 2011; Hartley, 2015). Local NGOs
supporting the Twa have been forced to change their mandate not to emphasize ethnic categories, which restricted projects specifically targeting the Twa (Beswick, 2011; Hartley, 2015). Consequently, discrimination against the Twa has become tangible, and their marginalization has escalated due to the policy of denying the existence of ethnic categories.

In the northern part of Katanga Province in the eastern DRC, ethnic categories intensified; a serious conflict erupted between the Twa Pygmies and the Luba people in May 2013 when the Twa demanded access to land and an end of alleged forced labor. In response, Luba militias, which oppose Rwandan government forces and their Congolese allies, blamed the Twa for having collaborated with Congolese soldiers and attacked Twa villages. They destroyed and burned houses and massacred many innocent inhabitants, including women and children. While the Twa comprised the majority of victims, the hostilities were not one-sided; Twa soldiers also killed many Luba civilians. As revenge for the 2013 massacres, Twa militias burned down several Luba villages in 2014, which caused the Luba to then retaliate. The fighting escalatd, followed by about 16,000 incidents of looting, homes being burned, extortion, torture, and sexual violence over a period of 10 months in 2014 (UNHCR, 2014a). The conflict has lasted for more than two years; hundreds of civilians have been killed and 400,000 people have fled their villages. Despite a peace deal signed by leaders of each ethnic group in October 2015, clashes continue. For example, two Pygmies were killed and 15 were seriously injured by Luba soldiers in September 2016 (Africanews, 2016).

Due to recent changes in Pygmies’ lifestyle, which transformed from being based on hunting and gathering to being centered on agriculture, communication between Pygmies and their neighbors has grown, which often leads to problems over land and natural resources, as well as interethnic aggression. Pygmies, who have been discriminated against, suffer from human rights challenges due to deeply rooted interethnic relations. However, Pygmy societies are transforming and the balance of interethnic relationships has also shifted. Before, it was extremely difficult for Pygmies to obtain arms and to fight against their neighbors, but this became possible following social changes. Pygmies can earn cash by trading natural forest resources for manufactured goods; in addition, they can expand job opportunities and social relations. They can therefore increase their military power and even become assailants, which engenders a chain of serious violence, as shown in the cases above.

HUMANITARIAN ASSISTANCE FOR PYGMIES

In light of the crises facing Pygmies, numerous international arguments for and practices of humanitarian aid have emerged (Msoka 2007). Several branches of the UN such as the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children’s Fund (UNICEF), and the World Food Programme (WFP) tackle issues in each domain. The European Union’s European Civil Protection and Humanitarian Aid Operation (ECHO), the United States Agency
for International Development (USAID), and many other national and regional organizations fund and promote humanitarian programs. There are quite a number of international and local NGOs that strive to ensure Pygmies’ survival and welfare. Many actors and projects exist in conflict zones such as the eastern DRC and the CAR, which improve harsh conditions in the following domains: healthcare; food and nutrition; water, sanitation and hygiene; and security.

Hereafter, I describe an example of humanitarian assistance in the zone where hostilities occurred between Twa Pygmies and the Luba, as mentioned in the above section.\(^{(3)}\) According to the annual 2015 report of the UN Office for the Coordination of Humanitarian Affairs (OCHA), there was a “standard allocation” of US $30.8 million for 18 projects in the DRC, and US $13.6 million was set aside for 7 projects in Katanga Province (OCHA, 2015). Each one had multiple aims, and five out of seven contained the goal of “food security.” In addition, there were projects for “protection” (3), “water, sanitation and hygiene” (3), “non-food items/shelter” (2), “health” (2), “nutrition” (1) and “education” (1).

In addition, there is a reserve “first emergency” allocation for urgent, unforeseen circumstances. A total of US $24.4 million was set aside for 62 projects in the whole country, and US $2 million was directed toward five projects for helping populations affected by the Pygmy-Luba conflict. Furthermore, US $2.4 million funded six projects against a measles outbreak, and US $2.2 million supported five projects for returnee populations in the same region. Thus, there were 16 projects in total. Each had a single purpose such as “health” (6), “no-food items/shelter” (3), “food security” (3), “protection” (2), “nutrition” (1) and “education” (1). Although the security situation has improved slightly since 2013, conflict continues to cause displacement in the area. Measures against food insecurity as well as epidemics are priorities; protection concerns are also high (ACAPS, 2015; OCHA, 2015).

Despite that various projects have been carried out with considerable funds to support Pygmies facing humanitarian crises, they do not always lead to sufficient, sustainable impacts. One of the most significant obstacles is bad governance. Unstable conditions in and around the eastern DRC have lasted for more than twenty years since the civil war in the 1990s. The CAR has experienced repeated coup d’états since it became independent in 1960, and the security situation there remains grave due to the political chaos of 2013. In such countries, there is an overwhelming need for humanitarian aid projects, which should be continued given the long-lasting conflicts that plague these nations. Much effort is required not only to support local people who need help quickly, but also to improve political instability, which is the root of many problems.

Governance is an issue in numerous states, although political circumstances may be relatively stable. Governance and elaborate management systems are not well-established. As shown above, development and conservation programs without effective governance tend to result in land-related conflicts and even human rights violations. It is necessary to help local governments and concerned organizations to strengthen their ability to govern, and improve management systems for land and natural forest resources.

Secondly, an obstacle remains in terms of distributing resources fairly and effec-
tively. Since there are many projects and actors, administrative and overhead costs are too high. Consequently, there is a lot of competition for budgetary resources among actors, and it prevents NGOs from growing up into valued humanitarian actors (SIDA, 2016). In addition, allocations for grassroots agents who truly need help have been significantly reduced.

The local politics of interethnic relationships also influence the distribution of resources. Pygmies have established long-standing close relationships with neighboring farmers. While they are mutually dependent economically, Pygmies are socially distinguished from farmers in the context of the farmers’ hierarchical social system (Takeuchi, 2014). As Pygmies’ lifestyle has changed, competition for natural resources and land has increased between Pygmies and farmers, and farmers have expressed greater social discrimination against Pygmies. Ichikawa (2006) pointed out that Pygmies today face a dual kind of marginalization within the context of their social structure. Namely, central African nations have been marginalized since colonial times, whereas Pygmies have been subjected to further pressures of marginalization that come from within these countries. This is remarkable, particularly in terms of humanitarian crises. As resources and land are limited and locals cannot control them, competition is considerably high, and social discrimination has intensified.

DISCUSSION

This article focuses on humanitarian crises among Pygmies in central Africa. The author described the exploitation of natural resources and forest conservation programs; although they are conceptually opposite, they both threaten Pygmies’ livelihoods since they deprive them of land. Civil wars and political instability also seriously endanger Pygmies’ survival. They have been the main victims of violence and discrimination related to political instability. In light of the crises facing Pygmies, there have been numerous humanitarian aid projects. However, they are not always enough to ensure secure, sustainable livelihoods for Pygmies due to bad governance in the region and lack of a fair and effective resource distribution system.

In terms of humanitarian aid for Pygmies, the most important aim should be adapting projects to take into account Pygmies’ social context and cultural characteristics. A large number of ethnographic data accumulated by previous anthropological studies (Hewlett, 2014; Matsuura, 2015) can contribute to achieving this aim. Pygmy traditions, such as the customary land-use system, joint ownership, and nomadic lifestyle, do not fit the modern context, including humanitarian assistance programs based on the global aid standard. When considering Pygmies’ social environments, their relationship with neighboring farmers is indispensable; humanitarian aid initiatives thus need to take account of traditional Pygmy cultures and aspects of discrimination, which are deeply rooted in Pygmy–farmer relations.

It is also important to understand the positive aspects of Pygmy-farmer social relationships, which have long been symbiotic and mutually dependent. There is
a general tendency for media reports and humanitarian activists to claim that Pygmies are surviving in tragic circumstances and cruelly marginalized. However, it is difficult to simplify Pygmy societies by such a stereotypical image because they are culturally and socially diverse, depending on the situation in each region (Hewlett, 1996; Bahuchet, 2014). During personal field research on the Babongo Pygmies in Gabon, the author observed that the Babongo coexist with neighboring farmers in equitably and peacefully (Matsuura, 2016). The Babongo adapted to modernization flexibly. Ethnic boundary and differences became ambiguous as biologically and socially mixed identities expanded in their communities (Matsuura, 2016). In some cases of humanitarian crises, symbiotic interethnic relationships have also been observed. For instance, there is a case where Bantus and Pygmies coexist in an equitable way in the Plateaux Department of the central RC (IRIN, 2006). Bambengas and Atswa Pygmies in the region sell food and goods in a town, are treated by Bantu doctors, and have the right to vote, just like Bantu people. Even in the area of the Luba-Twa conflict in the eastern DRC, Luba and Twa are peacefully cohabitating. When a group of Twa fled their village and found shelter in a Luba village, a Luba chief welcomed them, and they settled peacefully there in an orderly way (UNHCR, 2014b). This is indeed a rare case, but it is certain that both groups abhor conflict, resulting in the potential for peaceful coexistence and solidarity (UNHCR, 2014b).

While it is true that some Pygmies are dealing with remarkably harsh conditions and urgently need support, it should be noted that they are also highly resilient in the face of change and uncertainty. On one hand, their cultural and social characteristics make it difficult for them to cope with modern situations; on the other, their social flexibility enables them to adapt to new socioeconomic environments. Pygmy–farmer relations are also diverse, depending on the political circumstances and characteristics of the farmers’ social organization (Takeuchi, 2014; Matsuura, 2016). They can be discriminative but also cooperative, and it is possible for the two groups to use their relationship to establish solidarity in the face of humanitarian crises. It is considerably difficult to carry out field research, and there are a limited number of detailed and long-term ethnographic studies on the condition of serious humanitarian crises. However, a few examples do exist: Lewis (2006), who studied the Twa in post-genocide Rwanda; and Hewlett and Hewlett (2007), who described the Ebola outbreak in the Congo basin and East Africa. It is essential to gain a comprehensive understanding of Pygmy cultures and societies from these ethnographic studies, and to incorporate the local social context into the framework of humanitarian aid.

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NOTES

(1) Although the term “Pygmies” is controversial as it has discriminatory or abusive nu-
ances, the author uses it in this article. One reason is that the term is important to provide an overview of the circumstances facing central African hunter-gatherers as a whole. Another is that the term tends to be used in the context of humanitarian crises, especially by media, international organizations, and NGOs.

(2) There are also counterarguments against critics because it lacks detailed studies and hard data (Curran et al., 2009; 2010; Maisels et al., 2007).

(3) It is difficult to distinguish projects specified for Pygmies because each project does not focus on a single target. However, it is certain that Pygmies are the main targets for many projects due to their vulnerability, and it is highly possible that almost all projects in the area support Pygmies directly and/or indirectly.

(4) For example, there are 260 operational humanitarian actors in the DRC (SIDA, 2016).

REFERENCES


Assessment Capacities Project (ACAPS) 2015. Global Emergency Overview October 2015. ACAPS.


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Springer, Tokyo.


——— 2009. Is the displacement of people from parks only ‘purported’, or is it real?. *Conservation and Society*, 7(1): 46.


UN Office for Coordination of Humanitarian Affairs (OCHA) 2015. *DRC Humanitarian
Fund: Annual Report 2015. UN-OCHA.


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