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Resilience of the Baka in Cameroon's Changing Landscape of Neoliberal Development

Abstract

This paper explores the resilience of the nomadic Baka hunter-gatherers in Southeast Cameroon amidst socio-environmental changes induced by neoliberal development projects. These projects, spanning from protected area creation to the expansion of logging, agro-industrial complexes, and large-scale mining endeavors, have destabilized the Baka from their traditional lands. Despite concerted policies by the Cameroonian government and various national and international bodies to integrate the Baka into modern society through development schemes, they persistently face marginalization and a plethora of adversities including alcoholism, diseases, malnutrition, limited educational access, and infringement of rights. Grounded in socio-ecological theory, this paper analyzes the Baka's responses and adaptations to these transformations and their coping mechanisms alongside indigenous factors like individual attitudes and cultural transmission. By illuminating their ongoing struggles, this study contributes to a deeper understanding of the challenges faced by the Baka, their resilience, but also positive insights on their agency to cope with rapid socio-environmental changes.

Parole chiave

social-environmental resilience; Baka; neoliberal development; marginalization; transformation and adaptation

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Introduction

In the dynamic landscape of southeast Cameroon, the mobile Baka hunter-gatherers are confronted with significant socio-environmental changes driven by neoliberal development projects. These projects comprise of development initiatives where both the government and private or corporate actors implement actions guided by neoliberal principles — prioritizing markets, profit, and economic efficiency over social or environmental concerns such as large-scale mining, logging, agribusiness plantations, or hydropower projects where companies extract resources with state backing leading to precarious outcomes as displacing local or indigenous communities.[1] This paper highlights not only the remarkable resilience of the Baka but also their proactive agency in navigating the sweeping changes brought by neoliberal development. Despite efforts by the state of Cameroon and various organizations to integrate the Baka into modern society through development projects, they remain marginalized, facing social exclusion, limited education, and violations of their rights. Amid these challenges, the Baka however persist, demonstrating various responses and adaptations to the complexities of settlement, the effects of neoliberal globalization, and the intricate dynamics of indigenous culture, especially individual attitudes, and cultural transmission. We argue that, rather than being passive subjects of transformation, the Baka actively negotiate, adapt, and assert their presence through social processing of coping in a rapidly shifting landscape. Like Barry and Terashima's (2018:24) focus on "social learning and innovation in contemporary hunter-gatherers" — a process of cumulative culture featuring sharing of food and childcare being transmitted and acquired by children — the Baka are able to develop forms of social learning that responds to different societal challenges in their immediate environment.

A growing body of research indicates that populations with historically foraging-based livelihoods—such as the Hadza, Baka, Mbuti, and Batwa—are navigating complex and long-term transformations in how they secure food and income. Following the interpretive framework outlined by Gallois and Henry (2021), these developments are not simply the erosion of tradition but reflect ongoing interactions with regional economies, sociopolitical pressures from majority populations, and increasing ecological constraints. Together, these forces have limited the feasibility of relying exclusively on hunting and gathering, prompting many communities to broaden their livelihood strategies to include cultivation, paid employment, and other non-foraging activities (Codding and Kramer 2016; Reyes-García and Pyhälä 2017).

These shifts have also altered everyday food practices. As the contribution of harvested wild resources to household diets has declined, commercially obtained and industrially produced foods have become more prominent. Research has linked these dietary reconfigurations to changes in nutritional quality and health outcomes (Gallois et al. 2021; Kuhnlein 2015; Kuhnlein et al. 2006; Reyes-García et al. 2019). Crucially, however, Gallois and Henry (2021) emphasize that such transitions cannot be understood as uniformly imposed. In some contexts, they represent intentional and strategic decisions by community members, as documented among the Khwe in Bwabwata National Park East, Namibia (Paksi 2024). Elsewhere, adaptation follows different trajectories; for example, the Baka of Le Bosquet in southeastern Cameroon continue to combine hunting and gathering with other activities.

Previous studies about the Baka shed light on their unique challenges and adaptive strategies. For instance, Hewlett (2009) and Hewlett and Boyette (2012) examined hunter-gatherer children's lives, providing insights into their hunting practices and responses to cultural shifts such as sedentarism and schooling. Gallois et al. (2020) explored the role of play in knowledge transmission among the Baka, highlighting its significance in helping children navigate environmental challenges. Sato et al. (2012) ethnozoological perspective documents Baka hunting practices and their sustainable resource use strategies. Although Lewis (2002) has focused on a different group, his study provides relevant insights into the socio-cultural and ecological dynamics of forest-dwelling hunter-gatherer communities. Bahuchet's (2018) study of Baka socio-economic organization provides insights into the strategies these communities employ to adapt within the broader context of African forager societies. Research by Duda et al. (2018) further highlights the nutritional role of subsistence activities, showing that while cultivated crops supply the bulk of caloric intake, wild meat—or bushmeat—remains the primary source of protein and contributes significantly to dietary diversity and overall health.

Building on Osimiri's (2013) analysis, this paper examines the Baka's experiences navigating the social and environmental disruptions associated with neoliberal development projects. Neoliberal development, as Osimiri notes, refers to a set of market-oriented policies—including privatization, deregulation, and globalization—that have profoundly affected indigenous communities globally. In the African context, the term highlights how the interaction of market capitalism, fragile state institutions, and an often hostile international economic environment has contributed to persistent developmental challenges.

By situating the Baka within this framework, this study explores how such projects transform local social-environmental systems and the strategies communities employ to cope with these pressures. Within this framing, institutions as the International Monetary Fund (IMF), the World Bank, and the World Trade Organization (WTO) actively engage with the state to encourage market forces in the developmental process. This, however, alters the relationship between the state, civil society, and the market in favor of the latter. Meanwhile, neoliberal globalization has been described as the idea of bringing nations into a community where territorial boundaries lose significance, while political sovereignty is formally retained (Precious 2010, 2). In principle, states remain autonomous, but in practice they face restrictions and cross-border challenges that hinder integration. Globalization also involves the flow of capital, goods, services, and social activities that promote deeper cooperation.

Neoliberal development projects often prioritize economic growth and resource extraction over the rights and well-being of indigenous peoples, leading to displacement, loss of land and livelihoods, cultural disruption, environmental degradation (Denevan 2001; Li 2014; Descola 2013; West 2006), nature commodification wherein natural resources such as water, forests, and biodiversity are treated as marketable goods rather than elements of indigenous cultures and livelihoods (Harvey 2005; Li 2014; Zimmerer 2006). Neoliberal policies, also, often prioritize large-scale infrastructure projects, mining, logging, and agribusiness ventures on indigenous territories (Dove 2006; Escobar 1995; Niezen 2003). This results in the weakening of traditional governance systems and exclusion of indigenous voices from decision-making processes that affect their lives and territories (Brysk and Stohl 2000; Zimmerer 2006), but also in forced evictions, loss of access to traditional lands, and conflicts over resource ownership. Moreover, not enough discussions exist about indigenous people's actual access to territories and resources despite missionary and human rights narratives that suggest the importance of social power in combating the marginalization of indigenous people (Hewlett 2009). Efforts to address these dilemmas require recognizing and respecting indigenous rights, promoting inclusive development models, and ensuring meaningful participation of indigenous peoples in decision-making processes concerning their lands and resources.

We begin by situating the Baka settlement in Cameroon and discussing the effects of land use changes from colonization and state control over natural resources (Section 2). The research methodology and theoretical framework are then outlined (Section 3). We then present the neoliberal development case,

based on challenges facing the Baka in cases of territory loss and overlaps with logging, mining, and plantation projects (Section 4). Next, we discuss the opportunities for Baka resilience considering their adaptive strategies (Section 5). We then conclude (Section 6), drawing on the future implications.

Study area

Baka livelihood and settlement

The Baka, a community of approximately 40,000 individuals, have historically pursued a nomadic existence within the Congo Basin, spanning regions across Cameroon, the Republic of Congo, Gabon, and the Central African Republic.[2] As a mobile group today, their way of life underwent significant change starting from the 1950s under the influence of the French colonial administration, which compelled them to adopt a more sedentary lifestyle. This transition involved embracing agriculture and settling along logging roads (Leclerc 2012). These indigenous forest communities residing near the Boumba-Bek, Nki, Lobéké and Campo Ma'an (2680 square kilometers) national parks constitute approximately thirty percent of the total population of 100,000 individuals from multiple groups dwelling in the core of the Congo Basin Rainforest in Southeast Cameroon (Pemunta 2019a; 2019b; 2019c) (Figure 1).

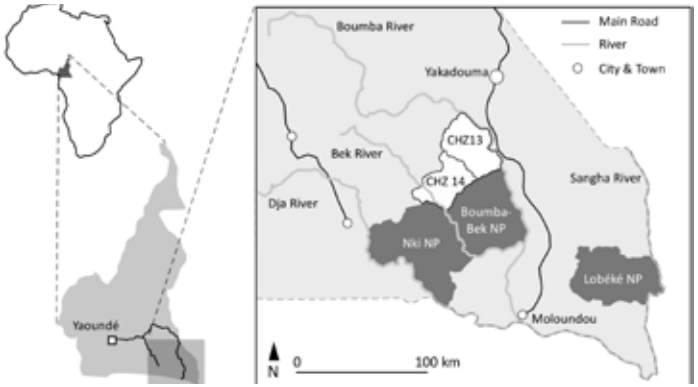

Fig. 1: Map showing three national parks around the Baka alongside community hunting zones (CHZs) 13 and 14. Besides the primary roads depicted, numerous secondary roads, predominantly built and upheld by logging companies, are also present. The abbreviation "NP" indicates national park.
Source: https://www.ecologyandsociety.org/vol20/iss4/art25/figure1.html (last accessed 12 January 2026).

These settlements, established near communities of Bantu-speaking farmers, served multiple purposes, including facilitating tax collection, and providing improved access to education, healthcare, and markets (Pemunta 2019a). However, this transition was accompanied by ecological shifts, deforestation, and the intrusion of external actors such as tourism, logging, mining agro-industries, conservation NGOs, and forest product merchants and traders, all of which have constrained the Baka's access to land and resources (Gallois et al. 2020). An ongoing World Wide Fund (WWF) study recommends granting Baka pygmies more access to natural forest resources in Boumba-Bek National Park. This study, conducted with various NGOs, highlights the significance of the forest to the Baka's livelihoods and cultural heritage. It suggests specific access rights and recognizes the Baka's role as effective nature conservators. However, it also notes challenges posed by modern influences and emphasizes the importance of balancing conservation efforts with indigenous rights.[3] In the present day, the Baka engage in a variety of subsistence activities, including hunting and farming, alongside participating in the sale of forest products and wage labor. Notably, much of their dietary intake, including staple foods like cassava and plantain, now originates from agricultural fields (Gallois et al. 2024; Gallois et al. 2020; Hattori 2014).

Post-1990s neoliberal era led to the implementation of various development initiatives aimed at economic growth and globalization. Neoliberal development projects have sparked significant socio-environmental changes across the globe. However, these projects often result in profound alterations to social structures, cultural practices, and environmental landscapes (McCarthy 2005). From large-scale infrastructure projects to privatization policies, neoliberal development has far-reaching implications for communities and ecosystems alike (Harvey 2005; McCarthy 2005). This introduction sets the stage for exploring the multifaceted impacts of neoliberalism on socio-environmental dynamics, highlighting the complexities and challenges inherent in contemporary development paradigms.

Displacement amid neoliberal development

Within the context of Cameroon's evolving landscape, the Baka community grapples with displacement and ongoing challenges despite purported development initiatives undertaken by the government of Cameroon, bilateral and multilateral donors, NGOs and missionaries (Pemunta 2019a). Despite their mobile

lifestyle, the Baka have been coerced into settling due to external pressures. By the late 1800s, French colonizers in North and West Africa prohibited rural communities from employing their traditional subsistence farming techniques, resulting in significant environmental deterioration. Local inhabitants were compelled to clear forests to establish cotton plantations and other lucrative crops across French Equatorial Africa, spanning from the Congo River to the Sahel. As the soil in these areas became drier and vegetation declined, a French colonial forester introduced the term "desertification". Subsequently, the colonizers attributed the environmental degradation — caused by their own actions — to the land management practices of migratory tribes and other indigenous groups.[4]

Despite governmental efforts to integrate them into mainstream society through agriculture and access to services, the Baka face persistent marginalization and obstacles. Land dispossession limited educational and healthcare opportunities, and cultural erosion underscore the complex dynamics of their displacement (Pemunta 2019a). Furthermore, encroachment by industries, deforestation, and discriminatory practices exacerbate their vulnerability. Deforestation has been identified as a primary health concern among the Baka, as it limits access to medicinal trees and facilitates disease transmission. The Baka lack authority over deforestation, with loggers negotiating directly with other groups for tree removal. Additionally, Baka men suffer health consequences from carrying wood and exposure to logging truck emissions, leading to respiratory problems, particularly in dry seasons. Despite these adversities, the Baka demonstrate resilience, striving to preserve their cultural identity, traditional knowledge, and socio-economic autonomy. Thus, the struggle of the Baka hunter-gatherers within Cameroon's changing landscape illuminates the intersection of displacement, marginalization, and resilience amidst evolving socio-environmental dynamics.

Methodology and theoretical framework

Data collection

Since the 1990s, the lead author has engaged deeply with ethnographic literature he has produced in southeastern Cameroon, examining the complex dynamics of displacement, land use, and livelihood transformations among local communities. His research specifically investigates the social and ecological impacts of conservation initiatives and large-scale infrastruc-

ture projects, such as the World Bank–sponsored Chad-Cameroon pipeline, which have reshaped patterns of settlement, access to forest resources, and customary land tenure (Pemunta 2019a; 2019b; 2019c). These studies illuminate not only the immediate material consequences of such interventions but also the long-term strategies that affected communities, including the Baka and neighboring populations, employ to negotiate, adapt, and assert agency in the face of development-induced disruptions. Engagement with civil society actors and protected area managers in cities such as Yaounde, Bertoua, Abong Mbang, and Lomie facilitated important discussions on the impacts of neoliberal development activities on the indigenous communities. This paper draws on insights from the aforementioned studies and is informed by literature published from previous studies conducted among the Moangue Le Bosquet community, involving 36 respondents in November and December 2022. It explores the Baka's adaptability to modern life and the conflict arising from the clash between traditional social organization, characterized by equality, and modern administration, represented by an appointed chief. Despite the Baka's openness to a rotational chieftaincy system, they have been subjected in the 21st century to an appointed chief, Tindo, who enforces authority with the assistance of the Rapid Intervention Battalion (BIR). Moangue Le Bosquet, forty kilometres from Lomie, was chosen as a research site for its distinct characteristics. The monetization of the local economy here has transformed labor dynamics from traditional bridal wealth exchanges to trading manufactured goods, changing mate selection practices, and reducing parental influence. Interviews and observations provided insights into the Baka economy, revealing new income-generating activities like motorcycle transportation and wood sales, marking significant economic shifts (Pemunta 2019a; 2019b; 2019c; in addition, Oishi and Hayashi 2014 discuss how the market economy affects Baka lifestyle).

Le Bosquet, a Baka settlement established by a Catholic mission along a logging route, has essential amenities like a health center and a school (Gallois et al. 2024; Girolet 2005). While maintaining traditional beliefs, some Baka have adopted Catholic rituals. The village focuses more on income generation than other villages. Le Bosquet represents a cultural amalgamation of market and religious influences, with a reverence for traditional healers. However, some cultural aspects are fading (Gallois et al. 2015; Gallois et al. 2024). We prioritized indigenous ways of knowing, being, and doing, adopting a critically reflexive stance (Kennedy et al. 2022). Our data col-

lection efforts illuminated the economic practices and adaptations of the Baka, showing their resilience amidst a changing socio-economic landscape of neoliberalism, such as the political challenges brought by state regulations governing hunting, hydroelectric and mining projects, sedentarization, and conservation efforts that restrict forest access.

Theoretical framework

This paper employs a social-ecological resilience framework, which examines the dynamics of systems involving both society and the environment and their ability to cope with crises or environmental changes (Adger, 2000; Berkes & Folke, 1998; Berkes, 2017; Bousquet et al., 2021; Cinner & Barnes, 2019; Dornelles et al., 2020; Folke et al. 2016; Keck & Sokdapolrak 2013; Oliver et al. 2018; Petrosillo et al. 2021; Walker et al. 2004). Social-ecological resilience views humans and their environments as interconnected and integrates cultural, political, social, economic, ecological, and technological components of society. We use this framework to examine the impacts of neoliberal development interventions—including protected areas, logging, tourism, agro-industries, and mining—on the Baka people. For the Baka Pygmies, social-ecological systems encompass hunting, tourism, conservation, agriculture, forestry, infrastructure such as the Chad-Cameroon pipeline, and energy systems (Nyongo & Kemingsi 2025).

Central to social-ecological resilience are the concepts of adaptation and transformation. Adaptation involves adjustments to changes that maintain the current state (Walker et al. 2004), whereas transformation occurs when adaptation is insufficient, resulting in a new state with altered interactions that enhances the ability to cope with different stressors (Folke et al. 2009; Walker et al. 2004). Resilience enables communities to positively respond to adversity, encompassing programs and practices that foster both individual and collective resilience, including cultural connections. Resilience can be ecological, focusing on an ecosystem's capacity to absorb change without significant alteration (Holling 1973), or social, focusing on the ability of social actors—individuals, communities, and institutions—to cope, adapt, and transform in response to challenges (Keck & Sokdapolrak 2013).

Other factors contributing to resilience include strategic flexibility, collective organization, learning capacity, socio-cognitive constructs, and decision-making agency (Cinner and Barnes 2019). Societal development path-

ways can drive social and ecological transformations, often accompanied by surprises and uncertainties. Strategies should aim to enhance a system's adaptive capacity rather than merely maximize resource extraction. Integrating comprehensive knowledge is essential for sustainable policies (Folke 2006; Petrosillo et al. 2021). In this context, adaptability involves sustaining and improving within existing frameworks, while transformability involves shifting to new directions. Our study seeks to understand the strategies the Baka employ to adapt to the challenges posed by neoliberal developments in their society.

Baka resilience amid challenges of neoliberal developments

This section presents the neoliberal development case among the Baka who confront modern complexities while striving to preserve their cultural heritage. Unlike Bantu groups, the Baka have historically lived on the margins of wider society, deep within Cameroon's equatorial forests, which initially limited their exposure to colonial incursions (Hewlett 2014). During the mid20th century, Cameroonian authorities implemented policies aimed at sedentarizing forest-dwelling populations, encouraging the Baka to settle along roadsides to facilitate integration into the national economy and access to services (Mveng 1991). These settlement initiatives, however, created spatial and social tensions, as the Baka were often marginalized within villages predominantly occupied by Bantu farmers. Contemporary pressures, including logging, mining, and the expansion of palm oil plantations, have further exacerbated the loss of traditional territories and access to forest resources for the Baka, challenging their adaptive strategies and cultural continuity (Bahuchet 2018).

Loss of territories

The Baka people's intimate connection with the forest defines their identity, culture, and spiritual beliefs, with the forest symbolizing their origins and sustenance. Any destruction of the forest represents not only a loss of habitat but also an assault on their divinity, harmony, and very essence. Land rights pose a significant challenge for the Baka as the Cameroonian government allocates vast forested areas to logging and mining companies (Awono et al. 2016). Sedentarization efforts aim to relocate the Baka away from their forest homes, encouraging cash crop cultivation and plantation labor. This diminishes

their territories, restricts land rights, and offers minimal compensation.

Such diminishing reflects a deep frustration asserting that despite their long history of sustainable coexistence with the forest, the Baka are marginalized and their rights to the land disregarded. It accuses external conservationists and the government of hypocrisy, suggesting that while they claim to protect the forest, they exploit it for economic gain through activities like logging and mining. To counteract this, there is need to reserve land for the Baka to maintain their traditional practices and access sacred sites (Awono et al. 2016). Participatory mapping and negotiation platforms can aid in securing land rights, while awareness-raising initiatives are vital to ensuring respect for Baka territories among stakeholders.

Logging

Cameroon's logging industry has undergone significant expansion, with logging companies such as La Pallisco and Sefac Group being allocated vast forest areas. This has led to the establishment of logging camps and wood processing sites. Despite attempts at negotiation, discussions by local authorities with logging companies have mostly failed, prompting the exploration of alternative strategies such as government intervention and legislative reforms. Establishing a strong network of Civil Society Organizations (CSOs) focused on indigenous peoples' rights is essential, along with awareness campaigns emphasizing local community rights in areas exploited by logging companies (Awono et al. 2016).

The country's tropical rainforest, covering approximately twenty million hectares, has suffered substantial loss, with nearly two million hectares disappearing between 1980 and 1995. During this period, Cameroon emerged as the world's fourth-largest wood exporter. By 1999, logging activities covered up to 76 per cent of the entire forest area (Cerutti et al. 2016; Pemunta and Mbu-Arrey 2013). Logging concessions, known as UFAs (Forest Management Units), have predominantly been allocated in southeastern Cameroon, leading to the establishment of large logging camps and wood processing sites, particularly by companies like La Pallisco and Sefac Group. Logging companies have constructed access roads penetrating even the most remote regions. Efforts by NGOs like ASABADJA association (Association des Baka de l'arrondissement du DJA), CADDAP (Center d'action pour le développement durable des autochtones pygmées), and AIDER, a local NGO to negotiate

with logging companies have been unsuccessful, prompting consideration of alternative strategies involving government channels and legislation, such as the proposed Forest Law. This may be seen as resulting from the NGOs limited power, insufficient resources, and fragile legal protection, while logging companies tend to wield wealth and sway alongside government allies. In this imbalance, indigenous land rights are pushed aside, leaving communities to battle on an uneven ground where their voices are easily silenced and their rights too often ignored.

Establishing a robust network of Civil Society Organizations (CSOs) focusing on indigenous peoples' rights is crucial. This could involve creating a national coalition akin to MBOSCUDA for the Baka people that would promote their genuine inclusion, and active engagement in safeguarding their rights to forest, capacity building by Réseau d'actions concertées pygmies (RACOPY), or forming new networks encompassing various organizations. In August 2014, the European Union supported a land tenure initiative where indigenous peoples' representatives and traditional chiefs discussed dialogue platforms for land rights. Further steps entail facilitating discussions between partner NGOs and stakeholders to develop a comprehensive awareness campaign highlighting local community rights to Non-Timber Forest Products (NTFPs) in areas exploited by logging companies (Awono et al. 2016).

Mining exploitation

Mining activities in Cameroon, particularly in the Eastern Region, present significant threats to the Baka. The expansion of mining concessions into forested areas disrupts ecosystems, cultural heritage, and livelihoods, with development projects often serving as a guide to gain access to territories, exacerbating social and environmental issues. Data reveals that in Cameroon, there are 15 protected areas spanning approximately 2,626,870 hectares, with boundaries conflicting with mining permits. These protected areas overlap with mining permits, covering an estimated 1,173,479 hectares, constituting about 45 per cent of the total area in conflict with mining activities (Mbi and Lebga 2020). Cameroon's mining potential, assessed through aeromagnetic surveys, indicates rich resources, particularly in the Eastern Region, where at least ten areas have been allocated to mining companies. These allocations, primarily for diamond, gold, and cobalt mining, encompass over sixty per cent of the country's territory. Mining concessions encroach upon forested areas,

national parks, and the ancestral lands of the Baka people, as depicted in the WWF Report.[5] Companies such as Geovic Mining Corp and Cam Iron are already conducting exploration and excavation activities, raising concerns about their social, economic, ecological, and cultural impacts on local communities and the environment (Devisscher et al. 2013).

However, discussions about these risks are lacking, with many stakeholders unaware of the drawbacks of mining exploitation. While the government possesses environmental impact assessment reports for some mining companies, these findings need to be shared and disseminated locally. Meanwhile, local communities are becoming increasingly informed about allocated mining areas and their potential consequences. For instance, disruption against traditional livelihoods, threats to cultural heritage, environmental degradation, and social upheaval, leaving communities to navigate the costs of development that often overlooks their rights and voices. Geovic Mining Corp and its sister organization, GeoAid, have initiated small-scale development projects in Baka communities, such as establishing vegetable gardens. These initiatives often pave the way for companies to gain unrestricted access to Baka territories (Awono et al. 2016).

Mining activities bring about modernization and social infrastructure development, but they also result in environmental changes, including habitat destruction, loss of cultural heritage, biodiversity decline, and pollution. Artisanal gold mining in Batouri has led to significant environmental harm, impacting the local population in various ways. The miners' low standard of living has resulted in increased school dropouts, higher rates of prostitution, and poor hygiene, contributing to health challenges. In addition to neglected mining sites, water contamination due to the utilization of heavy metals poses a significant environmental issue. Furthermore, deforestation, land degradation, and destruction of the forest ecosystem are notable consequences of this mining activity (Djibril et al. 2017). The expansion of oil palm cultivation further exacerbates environmental degradation in forested areas.

Palm oil plantation establishments

According to a 2012 working paper by Hoyle and Levang on Cameroon's oil palm sector, the country is increasingly targeted by the international oil palm industry, with a shift from small-scale edible palm oil production to large-scale biofuel production.[6] Over 76,500 hectares are now dedicated to industrial oil

palm plantations in Cameroon. The French conglomerate Bolloré dominates the sector, accounting for eighty per cent of national palm oil production and owning nearly 40,000 hectares of plantations. They are also considering biodiesel production. The Cameroonian government plans to lease more land for oil palm plantations, as indicated by officials from the Ministry of Agriculture and Rural Development (Awono et al. 2016; Pemunta 2019a). Sime Darby, another major player, is in negotiations for a 300,000-hectare lease. This "land grabbing" phenomenon poses uncertain but potentially detrimental effects on the Baka people and their land, already beginning to be encroached upon by oil palm plantations. This raises concerns about social and environmental impacts, adding to existing land management policies following Cameroon's ratification of the Convention on Biodiversity Conservation. Addressing these concerns requires reevaluating strategies developed by the Baka to tackle contemporary challenges.

Discussion

Social-ecological resilience theory suggests that systems can survive and even thrive when they undergo changes or crises if the people within them develop the capacity to adapt and cope with new circumstances (Adger 2000; Berkes and Folke 1998; Berkes 2017; Bousquet et al. 2021; Dornelles et al. 2020; Folke et al. 2016; Oliver et al. 2018; Petrosillo et al. 2021). In the case of the Baka, a forest-dwelling indigenous group, this resilience has been tested by the impacts of neoliberal development interventions. These interventions include large-scale territorial losses due to logging concessions, the expansion of mining activities, and the establishment of palm oil plantations, all of which have led to the widespread marginalization of the Baka.

Territorial loss for the Baka has not only reduced their access to vital resources but has also disrupted their livelihoods, which are closely tied to the forest. The expansion of logging and mining industries has exacerbated this marginalization by introducing environmental degradation and further limiting their land rights. The establishment of palm oil plantations has displaced communities, eroded knowledge systems, and fragmented the social fabric of the Baka, leaving them vulnerable to new forms of exploitation and economic precarity.

Despite these severe challenges, the resilience of the Baka remains evident in their ability to adapt. Their strategies for resilience can be understood through several dimensions. One key aspect is their knowledge acquisition, where the

Baka engage with both traditional ecological knowledge and new forms of information, allowing them to navigate changing environments. This cultural reflexivity has allowed them to reinterpret their relationships with the land and adapt their livelihoods, such as shifting from hunting and gathering to diversified forms of subsistence that incorporate some modern agricultural practices.

Moreover, the Baka have increasingly participated as conservation partners in efforts to protect biodiversity, particularly in areas where protected land intersects with territories of cultural importance. Although often limited by external actors, their participation in these initiatives reflects a form of strategic adaptation where they leverage conservation discourse to regain control over land management decisions. By becoming active players in conservation projects, they not only safeguard their cultural practices but also create opportunities to meet their livelihood needs in the face of global environmental policies.

This resilience demonstrates the capacity of the Baka to not only survive but to strive for autonomy within the restrictive frameworks imposed by neoliberal development. Their adaptive strategies illustrate a dynamic and fluid response to environmental and social changes, emphasizing their potential to act as both stewards of their environment and as political actors seeking greater self-determination within a system that marginalizes them. In this context, the Baka's resilience can be seen as a complex negotiation between maintaining cultural identity and finding new ways to engage with the challenges posed by globalized economic and environmental pressures.

Knowledge acquisition and agency

In relation to knowledge acquisition, the Baka continue to adapt to their new environments, even after being displaced from the interior forests. Our observations revealed that following their resettlement in villages, Baka households began to adopt similar technologies and practices as their Bantu counterparts. For example, they construct rectangular houses with roofs made of either metal sheets or raffia leaves, and walls of dried mud. Inside these homes, there is a careful organization of various objects, including beds, racks, shelves, fireplaces, machetes, mortars, buckets, toothbrushes, flashlights, mobile phones, chainsaws, spears, radios, foam mattresses, blankets, sheets, and religious imagery. Comparisons between Bantu and Baka kitchens show striking similarities in their layout and organization.

Additionally, during gathering activities, our observations highlighted the significant role of non-timber forest products in sustaining the resilience of the Baka. We identified various types of honey, as well as plant and animal-based products, each with specific uses as explained by local experts. This reliance on forest resources underscores the continued importance of traditional ecological knowledge, even in the face of displacement and environmental degradation.

Moreover, education has become increasingly important, with Baka individuals now attaining elementary-level education, up to the second grade. Mixed marriages between the Baka and Bantu further exemplify their openness to external influences, creating kinship ties with other ethnic groups. These social interactions not only foster collaboration, exchange, and integration between the Baka and Bantu but also reflect the Baka's agency.

This adaptability highlights the Baka's agency in social resilience. Their ability to navigate these changes indicates empowerment and self-efficacy, where they possess the cognitive and social capacity to respond to environmental and social changes on their own terms. This aligns with theories of resilience, which emphasize that individuals and communities should have the authority and freedom to shape their responses to socio-ecological challenges (Folke et al. 2016; Folke 2010; Rotarangi and Russell 2009).

Cultural reflexivity

Another key adaptive strategy for resilience among the Baka is their traditional knowhow, which reflects a form of cultural reflexivity — a process where people critically examine their practices and social conditions and adapt them in response to shifting circumstances. Reflexivity involves ongoing selfawareness and engagement with changing social and environmental contexts, integrating local knowledge with broader social systems (Cunliffe 2004; Denzin 2014; Smith 2012). From this perspective, Baka life narratives and identity practices are actively shaped by individuals and communities as they navigate evolving socioecological challenges. According to this perspective, life narratives and identities are increasingly constructed by individuals themselves rather than being confined by traditional, predetermined boundaries. Beck (1994: 5) refers to this phenomenon as the rise of "do-it-yourself biographies," where individuals continuously create their identities and life stories based on personal choices and aspirations. This cultural reflexivity positions Baka

culture as a credible source of knowledge, grounded in valid epistemological foundations, and fosters a reciprocal relationship between the Baka and their environment.

The resilience of the Baka to socio-ecological change and their adaptive capacity are supported by various social factors and assets at their disposal (Cinner and Barnes, 2019). One significant asset is the Baka's traditional ecological knowledge, particularly their renowned understanding about herbal plants, which occupies an important role in Cameroonian society (Pemunta 2018). This knowledge is deeply respected by other ethnic groups, as the Baka are frequently sought after for their reputed expertise in treating minor ailments and for their proficiency in sorcery (Fongnzossie et al. 2023). This social esteem extends beyond healthcare; for instance, politicians often consult Baka healers to resolve personal and political conflicts, overcome obstacles, or secure promotions, sometimes spending substantial sums for desired outcomes.

In contemporary Cameroon, direct transactions between politicians and Baka healers have become increasingly common, bypassing traditional Bantu intermediaries. This shift has empowered the Baka economically, as they now negotiate the value of their services directly, realizing the economic potential of their specialized knowledge. Notably, politicians, particularly those affiliated with the ruling Cameroon People's Democratic Movement (CPDM) party, frequently seek the ecological powers of Baka healers to enhance their political and social standing (Fürniss and Joiris 2011). This phenomenon reflects the growing recognition of Baka expertise in Cameroon, even as their healing practices remain unofficially recognized by the Ministry of Public Health.

In addition to their healing practices, the Baka's knowledge of medicinal plants has garnered attention from pharmaceutical research laboratories, which are increasingly interested in collaborating with the Baka to study these plants. Such partnerships have the potential to integrate traditional knowledge into mainstream healthcare, creating opportunities for mutual benefit. Early examples of Western pharmaceutical companies utilizing Baka knowledge underscore the need for organized and formal recognition of traditional medicine in Cameroon (Fürniss and Joiris 2011; Awono et al. 2016). By formalizing these contributions, the Baka's cultural reflexivity and ecological knowledge can be better acknowledged, contributing to both their resilience and the broader society's understanding of sustainable health practices.

Participation in conservation projects

The Baka continue to play a critical role as partners in conservation efforts by contributing their extensive ecological knowledge to biodiversity conservation projects in Cameroon. This collaboration fosters resilience in environmental protection, even as the pressures of neoliberal development reshape their social environment. The Baka's close relationship with nature, especially with animals like gorillas, chimpanzees, elephants, and buffaloes, and their shared plant-based diet, shows their special knowledge of managing the environment. Their knowledge is indispensable for biodiversity conservation projects, which rely heavily on environmental expertise to monitor plant and animal species and ensure sustainable ecosystem management.

From 1999 to 2009, various phases of the Central African Forest Ecosystems Program (ECOFAC) directly benefited from the Baka's expertise. Their contributions included monitoring plant species and tracking protected animals such as elephants, gorillas, buffaloes, and chimpanzees, activities crucial for the success of these conservation efforts. The Baka's long-standing familiarity with their forest environment has proven to be a valuable asset in the protection of these species, as their knowledge of animal behavior and plant ecosystems provides insights that are often inaccessible to outside conservation teams.

A notable example of this partnership can be seen in the collaboration between the Baka and the World Wide Fund for Nature (WWF) in the Nki National Park, Eastern Cameroon. A WWF official highlighted the critical role of the Baka in tracking wildlife, emphasizing their unparalleled skills in locating and monitoring elusive species.[7] Their ability to navigate dense forests and follow animal tracks has been a key component in the success of conservation programs aimed at protecting endangered species. This collaboration not only strengthens conservation initiatives but also empowers the Baka, reaffirming their role as essential stewards of their environment. It should be noted that, activities of the WWF have also faced criticism. In February 2016, Survival International filed a complaint against WWF, alleging that its support for anti-poaching squads in the Dja-Odzala-Minkébé forest in Cameroon led to abuse, forced evictions, and violence against the Baka indigenous people. The case highlighted tensions between conservation efforts and indigenous rights, raising concerns about ethical and inclusive approaches to environmental protection.[8]

The Conservation Director of WWF emphasized the unique expertise of the Baka in understanding the forest and their mastery of ecology. He highlighted

their exceptional skills in identifying and tracking animals, noting their ability to determine specific types of animals and the time of their passage based on ground marks.[9] He also mentioned their ability to communicate with the animals, underscoring the depth of their knowledge and connection to the forest ecosystem. Through their partnership in conservation, the Baka propagate a new form of economy based on income-generating activities with a focus on non-timber forest products. Non-timber forest products (NTFPs), according to the FAO's (1999) definition, are goods of biological origin other than wood, derived from forests, other wooded lands, and trees outside forests. The forest is composed of food resources that have become indispensable in the modern context. These resources are mostly known to the Baka because they have always used them daily. Gallois et al. (2024) have mentioned the age-old consumption of a variety of forest products in the collection activity. For him, sedentarization did not quickly lead to the abandonment of the traditional Baka way of life. Rather, it modified it because gathering and collecting activities are still alive. In the bosquet, the forest is still the providential provider of abundant food and constitutes one of the main sources of income for the Baka from plant-based products.

It should be noted that, while these examples of Baka adaptive strategies show their capacity to be resilient in the face of challenges brought by the neoliberal development of the state, they do not entirely prevent susceptibility to such pressures. The Baka's sovereignty and land rights continue to be threatened by these forms of maldevelopment as they seek empowerment within Cameroon's democratic governance system, characterized by competing political factions such as the ruling CPDM, the Social Democratic Front (SDF), and the National Union for Democracy and Progress (UNDP).[10]

Within this context, the Baka Pygmies of Bosquet are gradually emerging as active participants in the political process within the Lomié electoral district. In recent years, the Baka community has made significant strides in municipal council representation, securing three seats, signaling the beginning of broader recognition within national institutions. While the journey toward full representation remains arduous, the Baka express unwavering optimism, aspiring to achieve national political representation.

Conclusion

This paper explored the Baka struggle amidst neoliberal development, the challenges they pose, and how the Baka endure in this setting based on their resilience to the changing landscape. Our study shows that the Baka have over the years

been displaced by state-led acts of maldevelopment concretized through their loss of territories, logging and mining activity, and the establishment of palm oil plantations. This has prompted the Baka into sedentarism and forced resettlement along roadsides to integrate them into modern life. Today, they have become marginalized in villages already occupied by Bantu groups. We however, showed that, despite this adversity, the Baka are not completely powerless. They display a capacity to be resilient to such changes, reinforced by the adaptive strategies of knowledge acquisition, cultural reflexivity, and their involvement as conservation projects where the Baka's ecological knowledge proves significant to monitoring flora and fauna within protected areas. Leveraging their skills, they also carve a niche in the market for non-timber forest products, signaling their economic agency. Moreover, the Baka seek political representation, with some recently gaining seats in municipal councils through parties like the CPDM. In tandem with these internal strategies, a nascent civil society is burgeoning, championing Baka rights. In essence, the emerging Baka elite is cognizant of the social dynamics and endeavors to navigate the challenges of modernity.

It can be concluded that development initiatives can lead to both social and ecological transformations, often accompanied by surprises and uncertainties. Therefore, it is crucial to create strategies that enhance the adaptive capacity of systems to manage change, rather than solely focusing on maximizing resource consumption. Moreso, sustainable policies and investments should prioritize knowledge integration, aiming for a comprehensive understanding based on diverse perspectives (Petrosillo et al. 2021). Social and institutional connections among actors at different levels would be a useful addition to establish the foundation for more participatory and deliberative forms of governance, that can empower the Baka and their resilience. This governance model promotes resilience by offering flexibility, bridging diverse perspectives, and facilitating solutions tailored to the specific scale of the issues (Bousquet et al., 2021; Cinner and Barnes 2019; Petrosillo et al. 2021), while allowing the space for indigenous groups to thrive under intricate situations.

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