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Paths of authority, roads of resistance: Ambiguous rural infrastructure and slippery stabilization in eastern DR Congo

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ABSTRACT

This article uses the concept of the 'infrastructural frontier' to trace the linkages between externally financed road building projects and the constitution of eastern DR Congo as a liminal political space at the material edge of the state. This frontier space has two core features: first, the patchy quality of its road infrastructure, which is perpetually rebuilt only to disintegrate again. Second, the transient nature of configurations of authority and control, leading to 'circulation struggles' along roads that are never fully functional. These features contribute to the collapse of a clear-cut dichotomy between the presence and the absence of transport infrastructure, but also between spaces of control and spaces of resistance. The constitution of eastern Congo as an infrastructural frontier, we argue, is importantly related to its 'subversive soils', whose clayish, sticky substance accelerates road degradation and compounds power projection. The resulting patchiness of both durable road infrastructure and central state control generates a 'frontier effect': it invites perpetual external donor interventions to build roads, but these projects never fundamentally upend the infrastructural and political state of affairs. In fact, as we demonstrate, these projects have become crucial to its very constitution. These observations point to the dual temporality of eastern Congo's 'perpetual' infrastructural frontier, where the short-term volatility of circulation struggles is both a product of and reproduces its frontier-ness over the *longue durée*. Our contribution thus demonstrates the intricate relations between the temporal, material and political qualities of frontier spaces.

1. Introduction: Congo's perpetual infrastructural frontier

Njia muzuri haikose lukumba – 'even a good road is full of curves'.[1] IN FEBRUARY 2019, a group of armed men stopped the jeep used by François, an engineer, to conduct a pre-evaluation for a road rehabili-tation project between Kaandja and Mahanga, a slippery 10 km stretch of dirt road snaking between steep hills in rural eastern Democratic Republic of the Congo (DRC) (see Fig. 1). François was well aware that the road he was surveying cut through the heartland of the Alliance of Patriots for a Free and Sovereign Congo (APCLS), a local militia that controls this area. 'I could feel and sometimes catch a glimpse of the rebels in the bush above', he explained, 'strategically watching every movement along the road. Usually, they left us alone—who doesn't want a better road?' This time, however, it was different. The rebels led François and his team out of the jeep and into the hills, where they were held for 48 hours. During this time, François learned that far from welcoming the road project, the leader of APCLS, Janvier Karairi, believed it heralded the advance of a coalition of army soldiers and enemy rebels that would imperil his control over the area. Karairi also insisted that the project should engage *local* youngsters—that is, APCLS members. 'The rebels are everywhere', he continued. 'In fact, since we employed them, they're also on the road below. I later drove past our workers', François confides, 'and when they looked up at me, I could recognize one of my kidnappers. I looked him in the eyes, thinking, "you were one of them, carrying an RPG instead of that shovel".'

This incident illustrates the ambiguous effects of building road infrastructure on dynamics of armed conflict and political power in the eastern DRC. According to the logic underpinning the World Bank's multi-million dollar 'Eastern Region Stabilization and Peace-Building

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[1] Swahili proverb used by one of our interlocutors

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Project' (STEP) that financed François' work, roads would help 'stabi-lize' war-torn eastern Congo. The overarching UN stabilization strategy for eastern Congo was anchored in a similar logic. It stipulated that building roads allows for rolling out state authority and the rule of law in far-flung areas; promotes development by facilitating trade and access to markets; and therefore, ultimately weakens the grip of non-state armed actors over people and territory (Shelley, 2011). The rehabilitation of the Kaandja–Mahanga road, however, ended up reinforcing both the APCLS's authority and income. It intensified competition with the Congolese army and other rebel groups in the area, which fueled rather than diminished armed conflict. Moreover, the effects of road rehabili-tation only lasted until the next rainy season, after which they washed away along the gullies that rendered this road, and others rehabilitated for the same project, impracticable again.[2]

The failure of roadworks to 'engineer peace' in eastern Congo is inscribed in a long history of externally financed infrastructure projects that never seem to have the intended effects, whether sustainable agricultural growth, expanding markets, security, or the reinforcement of central state authority. This curious phenomenon was first noted thirty years ago by James Fairhead (1992), who examined the contra-dictory effects of the construction of rural roads—which he called 'paths of authority'—in eastern Zaire, as Congo was then named. Exploring 'whose interests does the expanding road network serve and what kind of social change is promoted?' (1992: 20), Fairhead found that road expansion intensified extortion by state agents and drove up prices for foodstuffs and land. This, in turn, fostered land-grabbing by elites. Expanding roads therefore undermined rather than promoted people's livelihoods and the putative 'free market'. Because state agents operated in a decentralized manner and usurped the revenues from extortion, road expansion also did little to reinforce central state authority.

Much has changed since Fairhead's pioneering analysis: since the mid-1990s, eastern Congo has been engulfed in violent conflict, altering the dynamics and stakes of the politics of roads. In response, external road building efforts are now justified in the name of 'stabilization'. Yet

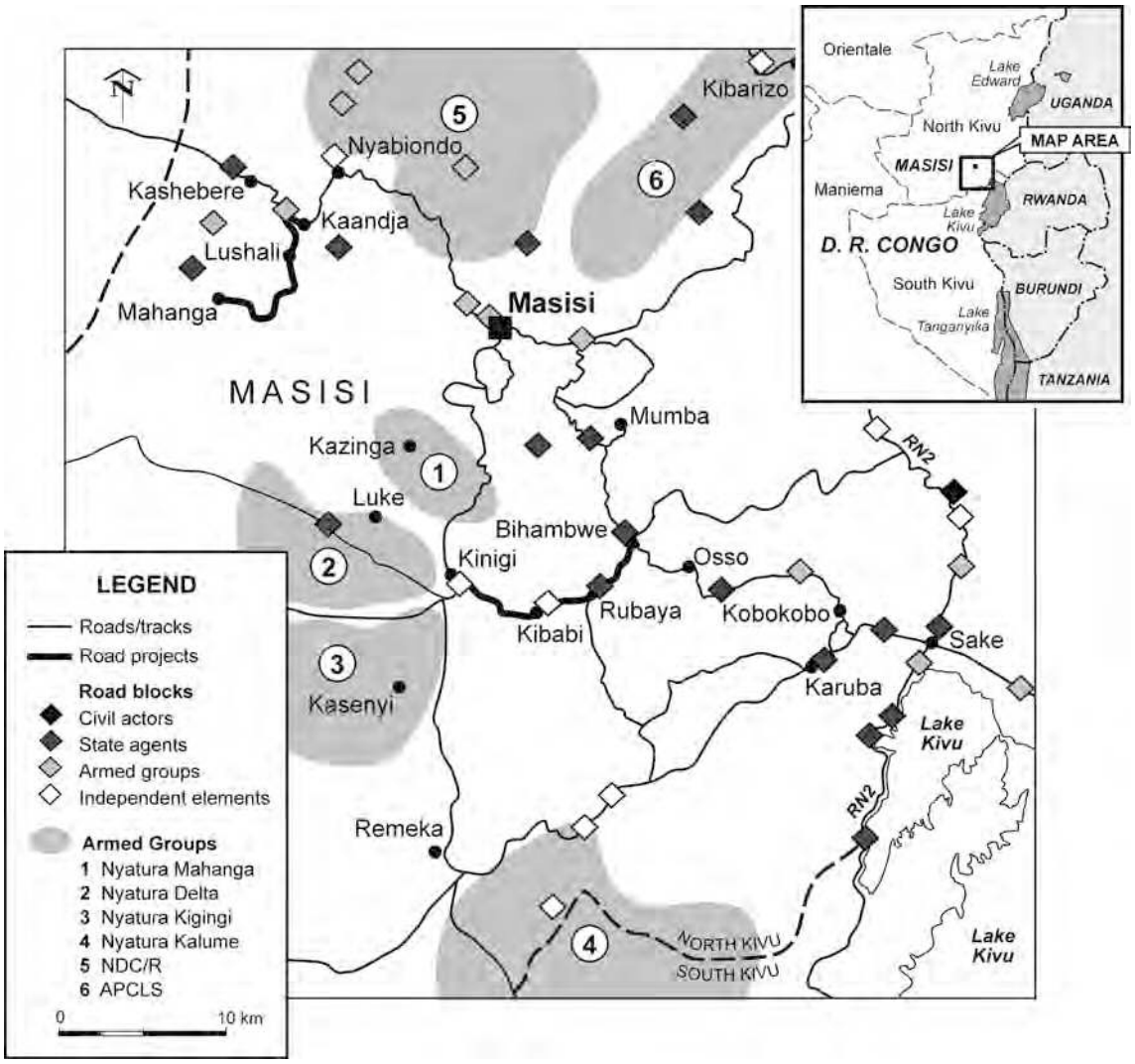

Fig. 1. Map of the research area with approximate armed group locations (early 2019).

there is also a good deal of continuity: as in the past, road building projects today have ambiguous and at times counterproductive effects on people's security and livelihoods. Moreover, they do little to rein-force central state authority. Despite this, continuing a trend that started under colonialism, the enthusiasm of external actors to construct roads in the Congo shows no signs of abating.

[2] Above analysis is based on interviews held in Goma and Masisi, April 2019, and personal correspondence with a country program officer, September 2020. For safety reasons, the real name of the engineer and his organization are withheld.

In this article, we argue that continual infrastructural interventions by donors crucially contribute to the constitution and reproduction of eastern Congo as an 'infrastructural frontier'. This 'frontierness' has both material and political features: first, the unfinished quality of the area's seemingly perpetually dilapidated road infrastructure and sec-ond, the unsettled nature of configurations of authority and control, including over roads, leading to continuous contestations among different types of authorities and road users over how goods, people and capital circulate and who gets to benefit. These features are importantly related to the unruly nature of eastern Congo's soils, whose sticky, clayish qualities accelerate road degradation and make power projection challenging.

Taken together, degraded road infrastructure and fluctuating rule collapse a clear-cut dichotomy between road infrastructure and rough terrain, and relatedly, between spaces of control and spaces of resis-tance. External donors perceive and frame these features as 'deficiencies' in infrastructure and governance, which would justify continual investment in roadbuilding projects. The resulting influx of resources intensifies struggles over circulation, without ever leading to fundamental shifts in patterns of authority or longer-term improvements of road infrastructure. In this way, donors' representational and policy practices generate a 'frontier effect' that (re)produces eastern Congo as an infrastructural frontier over the *longue durée*.

We trace the making of eastern Congo's infrastructural frontier by revisiting Fairhead's main argument about road expansion, exploring its effects on today's militarized political economy. In addition, we take inspiration from his methodological approach, analyzing circulation struggles among local authorities and road users 'from below'. In the following, we first situate our contribution in theoretical discussions on road infrastructure, authority and resistance. We then outline the research context and methods. Subsequently, we describe how Congo was historically constituted as an infrastructural frontier. We then take a view from below, analyzing everyday circulation struggles to shed light on the ambiguous nature of both eastern Congo's political terrain and the effects of road infrastructural interventions. We conclude by reflecting on the interplay of subversive soils, ambivalent political terrain and infrastructure interventions in Congo, highlighting how it challenges the deeply engrained theoretical association between infra-structure and control on the hand and rough terrain as spaces of resis-tance on the other.

2. Infrastructural frontiers: politics at the material edge of the state

The politics of infrastructure forms the subject of a rich literature which approaches large-scale interventions in the built environment as forms of power and violence, as expressions of processes of state- making, and as sites of contestation (Khalili, 2017; Knox and Huse, 2015; Larkin, 2013; Rodgers and O'Neill, 2012). Many of these studies explore material politics in infrastructure-dense settings, yet across the world, vast areas exist that are most notable for the paucity or even the absence of infrastructural trappings. This often coincides with limited and contested control by central state apparatuses. We put forward the term 'infrastructural frontier' to capture this material edge of the state, the terrain where the manufactured physical features of the state dissolve, and where relations of authority and control are continually dis- and re-assembled, both shaping and being shaped by ongoing 'cir-culation struggles' (Clover, 2016)—here defined as struggles over the regulation of the possibilities for and conditions of the circulation of people, goods and capital, including the extraction of wealth and labor from road users. This terrain is quintessentially liminal in both material and political terms: distinctions between paved roads and muddy pathways as well as between control by and resistance against the central state come apart as easily as road infrastructure itself.[3] The notion of the infrastructural frontier therefore challenges the conceptual frontier between rough terrain and resistance vs infrastructures and control, and captures the local frictions resulting from efforts to engineer political outcomes through infrastructural intervention.

Infrastructural frontiers in so called 'fragile contexts', we propose, are in part produced and reproduced through the discursive and mate-rial interventions of aid donors. The latter tend to frame forests, mountains, swamps and other physical and logistically challenging ge-ographies as 'frontiers' in a political sense because they elude infrastructure-dependent 'remote control' by central states (Saxer and Andersson, 2019; cf. Peluso and Vandergeest, 2011; Scott, 2009). Indeed, Congo's dilapidated transport infrastructure has often acted as a powerful proxy for framing it as a 'failed state', unable for 'objective' material reasons to project authority to the confines of its vast national territory (Pourtier, 1991; Schouten, 2013). Aid donors have invoked these framings to justify heavy investment in road construction projects with the aim of establishing central state authority, as a means of 'paving the way' for market-led development (Fairhead, 1992). Through these twin material-discursive effects, infrastructural deficiencies are integral to the production of what Ballvé (2020); borrowing from Mitchell (1999); has called the 'frontier effect', designating how spaces gain their unruly, frontier-like features only as a part of state-building efforts.

Studies of the politics of infrastructure have often approached terrain as a static field of intervention rather than a force shaping political possibilities (Belanger, 2009; Elden, 2010). To amplify the politics of the biophysical landscape thus suppressed, we attempt a more 'grounded' approach to the study of infrastructural frontiers that is attentive to the lively politics of allegedly inert landscapes. We build on political ecology to probe the political affordances, struggles and relations supported by more ambiguous physical terrains, foregrounding what we call Congo's 'subversive soils': at once a specific geomorphological configuration that opens up some and forecloses other logistical and political possibilities and a perpetual field of infrastructural intervention (cf. Puig de la Bellacasa, 2014; Shell, 2015).

Congo's subversive soils are highly complicit in the constitution of eastern Congo as an infrastructural frontier, shaping its spatial and temporal features. By provoking the rapid degradation of road infra-structure, eastern Congo's 'black cotton' soils render the distinction between paved roads and rough terrain meaningless and invite contin-uous infrastructural intervention. The World Bank has been involved in infrastructure projects in Congo since 1952, when it was still a Belgian colony. It has cumulatively opened up and rehabilitated tens of thou-sands of kilometers of roads, yet Congo's road network continues to stand out as one of the world's worst. It seems as if externally financed roads degrade at almost the same pace as they are constructed—unlike more static infrastructures, they ebb and flow. Understanding the workings of the frontier effect requires attending to this enduring faltering quality of the road network in connection to prevailing bio-physical conditions and how this reproduces frontier-like features over time, licensing continual external intervention and the attendant cir-culation of donor money (cf. Carse and Kneas, 2019; Furlong 2019; Mitchell, 2014).

Besides putting money into circulation, the reconstruction and degradation of roads feed into the reassembling of relations of property and authority that is a hallmark of frontier zones (Korf and Raey-maekers, 2013; Li, 2014; Rasmussen and Lund, 2018; Tsing, 2003). In eastern Congo, this reassembly is a continual process. A multitude of sometimes overlapping coalitions of state and non-state armed factions and allied civilian authorities vie for control, without ever achieving long-lasting hegemony. These different factions have contradictory

[3] We approach 'liminal' herein along the lines of Mary Douglas's discussion of viscosity and order (1966: 38).

interests in both the rehabilitation and degradation of roads, implying they rarely unambiguously support road construction and sometimes actively undermine it.

Oscillating control over roads feeds into circulation struggles. These struggles are importantly shaped by the interaction between three ele-ments: first, the material qualities of circulatory pathways, which are deeply connected to the biophysical qualities of the soil; second, stra-tegies of rule and wealth extraction by state and non-state, armed and non-armed power factions; and third, road users' modes of navigation, as shaped by various intersections of gender, class, and sociopolitical position. While circulation struggles induce volatility in the short term, in the long run, they do not fundamentally transform the structure of power relations, in particular, central state control and the relative power of armed vs non-armed factions. Congo's infrastructural frontier thus involves two timescales: first, that of the short-term volatility of circulation struggles and subversive soils, and second, that of the *longue durée* of the donor-driven frontier effect and perpetual infrastructural ruins (cf. Bachmann et al., forthcoming).

It is in the nexus between terrain and control that the concept of the infrastructural frontier allows us to expand the critical literature on infrastructure and resistance. This literature is to a large extent orga-nized around a productive analytical opposition between spaces of control pervaded by transport and communication networks on the one hand, and spaces of autonomy, opposition and insurgency, characterized by rough and impenetrable terrain, on the other (e.g., Scott, 2009; Shell, 2015). Our findings force us to challenge this all-too-neat dichotomy. First, muddy pathways in Congo resist clear-cut distinctions between 'road infrastructures' and 'rough terrain', straddling both categories in a material sense; second, resistance and imposition blend along these ambivalent pathways, blurring the boundaries between state space and terrains of resistance. Infrastructural frontiers are therefore ambiguous political terrains, where road building and rehabilitation often have contradictory effects on political-economic order. Consequently, infra-structural donor projects in eastern Congo ultimately merely tempo-rarily reassemble and reshuffle, rather than fundamentally transform, both Congo's subversive soils and the militarized political economy that has emerged with the withering of colonial-era transport networks.

3. Research context: infrastructural stabilization

This article is the product of a research project on infrastructure and peacebuilding, which aimed to elucidate how counterinsurgency and statebuilding work not directly on people but through their environ-ment. The project focused on interventions which try to render spaces amenable to specific kinds of access and stability by 'attacking' illegible terrain and re-engineering human ecologies (Bachmann and Schouten, 2018). One of the project's case studies was the World Bank's STEP which pumped 31 million USD into road infrastructure projects in 310 different rural areas in Congo between 2015 and 2019 (World Bank, 2014). Like infrastructural stabilization programs elsewhere, STEP was based on the notion that 'the rehabilitation and passability of key routes is a key strategic element' of stabilization (Shelley, 2011).

The corollary of considering transport infrastructure key to the constitution and spatial spread of central state authority is that its absence —rough terrain and isolated areas with their attendant logistical difficulties— constitutes a physical frontier to state authority. This assumption finds traction in academic studies highlighting limited transport infrastructures and rough terrain as a crucial factor of both African 'state weakness' (Herbst, 2000; Pourtier, 1991) and civil war (Müller-Crepon et al., 2021; Fearon and Laitin, 2003; Tollefsen and Buhaug, 2015). It also underpins the 'positive' association in resistance studies of forests, mountains, and swamps with state evasion, subversion and insurgency (Brachet and Scheele, 2019; Gordillo, 2018; Scott, 2009; Shell, 2015). If insurgency thrives in remoteness and rough terrain, transport infrastructure becomes a weapon in counterinsurgency and stabilization efforts (Ahram, 2015; Khalili, 2017; Paudel and Le Billon, 2020).

An important dimension of the research project was to identify the assumptions underpinning roadbuilding as stabilization and compare them with the actual effects of these interventions on power struggles and people's livelihoods and security. To achieve this, we built on the ethnography of roads (Harvey and Knox, 2015) and aid (Mosse and Lewis, 2005), studying how roads come 'alive' politically in projects that equate kilometers of rehabilitated road with stabilization effects. To this end, we followed road projects in their different stages and across related locales: from western capitals, where we participated in high- level deliberations on the inception of stabilization programs in 2017, via the country offices where these programs are translated into project activities—surveys, assessments, tenders, accounting—to rural eastern Congo where they are physically implemented. We collected most of the empirical material through qualitative fieldwork on recent stabilization roads in 2019, focusing on the Mahanga-Kaandja and Bihambwe-Kinigi road stretches in North Kivu province (see Fig. 1).[4]

We conducted observations along those routes and semi-structured interviews with engineers, donors, various categories of road users— particularly farmers and traders—and those exercising authority along roads, including state security services, rebel groups, and local chiefs. To revisit Fairhead's analysis, this fieldwork aimed to explore engineering challenges, circulation struggles and the lively contro-versies that rehabilitation sparked among roadside communities as to who benefits and who does not (cf. Anand, 2012). The research team was composed of international and (eastern) Congolese researchers who have long engaged with the intersection of developmental challenges, conflict and human rights. A collective translation and close reading of Fairhead's article provided a common set of questions around the pol-itics of roads in eastern Congo, while joint data collection and discussion cemented our analysis.

4. Subversive soils: (un)making the infrastructural frontier in Congo

Central Africa's specific tropical climate and geomorphology conspire to produce a soil type called 'vertisols', notorious for its clayish consistency. Vertisols form where sediments wash into the depressions of undulating landscapes, where humans typically chart their course to reduce the friction of terrain. They heavily swell with rain, saturate quickly to give rise to viscous puddles and glutinous gullies, and shrink into hard, cracked earth when drying. In tropical conditions, implying humidity for most of the year, roads become, in a very literal sense, 'sticky' infrastructures, pulling on wheels, feet and shoes (Duffield, 1970: 1056). In the following, we outline how these geomorphological features have interacted with efforts to develop road infrastructure and establish central state authority in past and present.

4.1. The longue durée of roads as paths of authority

Up until the 20th century, people in Central Africa synced life to the propensities of soils: they generally avoided cultivating on vertisols, and the low level of nutrients in other endemic soils obliged communities to resettle periodically to new farmland (Pourtier, 2015; Sys, 2003). Long- range displacements were generally limited to the dry season, when overland routes were sufficiently dried out to become fordable (Rockel, 1997; Vansina, 1979).

> Early colonial efforts in the Congo Basin attempted, in vain, to keep open lines of communication during the rainy season. Consider Emile-Désiré Parfonry, a Belgian officer of the Comité d'Études du Haut-Congo

[4] To corroborate and broaden our analysis, we draw on additional fieldwork conducted between 2010 and 2019 for a variety of research projects that touched on conflicts over roads and natural resources in other parts of eastern Congo.

(Study Committee of the Upper Congo), a precursor of the Congo Free State (1885–1906). Parfonry was in charge of a caravan route consid-ered pivotal; his job, therefore, was to 'keep the route open at all times'. Laboring in the rainy season of 1883 with only a handful of 'workers', he was engaged in a Sisyphean battle to transform the stubborn Congolese soil into stable and orderly transport infrastructure:

> Opening a durable route accessible for enormous chariot-wagons, with a pickaxe, with a shovel and blasting powder, over a length of dozens of kilometers; assailing a ground transformed, in many pla-ces, by the rains, into masses of thick, fetid mud, was a real Hercu-lean effort, strewn with perils. […] At two o' clock, the rains began, torrential, and at three the rain passed, and rays of sunlight darted over what remained of our work site. Imprudently, Parfonry rushed out of his tent bareheaded to examine the damage caused by the tornado. It was much more than just a minor compromise of their work; everything would have to be redone over a length of four ki-lometers. Parfonry sank to the ground, discouraged by the disaster. We heard him shout: "My head is on fire! Am I crazy? Help me! Help me!" He sank into the muddy water of the road (Institut Royal Colonial Belge, 1948, translation ours).

The Belgian colonial administration (1906–1960) subsequently strove to extend permanent, aseasonal, control to the confines of its vast possession —about the size of Western Europe. It saw transport infra-structure as essential to render the colony legible, taxable and control-lable and to facilitate resources extraction (Huybrechts, 1970). As the Ministry of Colonies put it, transport infrastructure

> has a political importance of the first order in that it enlarges the efficacy of sovereign power, whose intervention it renders easier and faster and which it turns into an active reality. The official who governs, the missionary who evangelizes, the soldier who maintains order see their action increased tenfold by mobility (Ministère des Colonies, 1914a: 13, translation ours).

The colonial administration embarked on a program of feeder road construction to ship agricultural products to mining centers and on-wards (Uyind-a-Kanga, 1987). To achieve this, it was pivotal to master Congo's subversive soils—indeed, 'domesticating the forces of nature' was a hallmark of Europe's 'gift' to the rest of the world, as a former Belgian Minister of Colonies put it (Wigny, 1951). However, Congo's endemic vertisols thwarted these ambitions. Well into the 1930s, a big part of the road network was considered 'impassable' during the rainy season (Devroey, 1939), curbing the administration's effective control outside of outposts and urban hubs (cf. Henriet, 2015). Even during the dry season, the passage of only a few hundred vehicles was enough to form potholes and corrugations on a newly levelled surface of desiccated road (Millard, 1962). During the next rainy season, the colonial administration found that clearing roads had intensified the erosive propensities of the clayish soils, disfiguring the roads beyond recognition.[5] As Tsetse flies prevented the use of pack animals, well into the 1930s, colonial logistics in rural Belgian Congo took the form of slow, porterage-based mobilities.

Colonial engineers considered vertisols 'matter out of place' (Doug-las, 1966) in roadbuilding schemes. In some areas, they stabilized roads by removing a layer of vertisol topsoil and replacing it with less fickle soil types, chemically stabilized or imported from elsewhere (Devroey, 1939). The most common way to maintain a semblance of stable colonial access to rural areas, however, was a combination of the continuous compacting of roads and rain barriers limiting traffic. Since both were labor-intensive, the consolidation of a territory-wide road network—completed by the 1940s—came to depend on forced labor, recruitment for which the administration imposed on customary chiefs. It was estimated that every able-bodied rural person spent about a month a year on extending and maintaining the road network. It is therefore hardly surprising that people considered roads symbols of the oppressive colonial state and consistently moved away from them (cf. Isaacman et al., 1985; Likaka, 2009).

Shortly after independence in 1960, Congo's usable road net-work —then an impressive 152,000 km—shrunk by 60 %. This was in part because rebels destroyed roads and bridges as symbols of imperi-alism (Fox et al., 1965), but also because a large part of hitherto forced maintenance work fell away, as the independent government could no longer requisition forced labor, nor did it have the budget to start paying instead (Wolfe, 1966). While Mobutu Sese Seko, who gained power in 1965, reinvented labor exactions by requiring chiefs to dedicate *salongo* (customary corvee) to the upkeep of state infrastructures (Callaghy, 1984), this yielded only inconsistent road maintenance. At the same time, the dramatic state of the road network formed a convenient pretext for western donors to channel funds to Zaire, purchasing Mobutu's wavering Cold War allegiance while closing their eyes to his misap-propriation of aid. The World Bank poured billions of dollars into the country's transport network in a Sisyphean procession of projects that brought neither durable development nor state authority.

With the *Office des routes* (road maintenance service) so mired in problems it was cheekily rebaptized the *Office des trous* ('service of potholes'), rural roads further degraded. In 1985, only 15 % of the network inherited from colonial rule was nominally passable (Reno, 1998). To cope with transport difficulties, Congolese resorted to creative forms of mobility adapted to ambivalent logistical terrain. They inven-ted, for instance, the *chukudu*, a sturdy wooden two-wheeled vehicle able to haul cargo over slippery soils. This creativity testifies to the growing spirit of *auto-prise-en-charge* (self-reliance) that people in Zaire developed in the infrastructural ruins of the state (Schouten, 2014; cf. MacGaffey, 1983; Wilkie and Morelli, 1997).

The increasing patchiness of physical connections weakened the grip of the central state apparatus over remote rural areas (Callaghy, 1984). 'Coercive coalitions' (Collins, 1981) of traditional authorities, rural entrepreneurs and state agents, including army officers—whose mem-bers were often called *petits Mobutus* ('small Mobutus')—ruled these areas in a semi-autonomous manner, imposing heavy taxes, appropri-ating land, and mobilizing forced labor (Sosne, 1979; Schatzberg, 1988). As Fairhead (1992) showed, donor-sponsored roadworks only facilitated these exactions. Yet he posited that these exactions only occurred along roads connecting villages to the outside. He contrasted these 'paths of authority' with small, vernacular pathways connecting villages to each other—logistical terrains fundamentally withdrawn from the state.[6] Here, villagers exchanged different products cultivated across the vertical ecotones of the Kivus according to patterns of mutual aid and obligation, unencumbered by exactions from self-proclaimed authorities.

4.2. Roads as paths of stabilization

Rural pauperization and dissatisfaction with state oppression, in combination with land conflicts and complex identity politics, laid the basis for armed mobilization in the 1990s (Vlassenroot and Van Acker, 2001). During the Congo Wars (1996–1997 and 1998–2003), roads became the sinews of war and rebellion, recasting local footpaths as contested terrains and forest as subversive spaces. In the Second Congo

[5] Like transport, torrent runoff takes the path of least resistance, and the bare soil ~~geographies~~ of cleared roads often make for preferred pathways for water to stream downwards uninhibited, thus accelerating road erosion (Makanzu Imwangana et al., 2014).

[6] Whereas for Fairhead these oppositions were crystal clear, the Congolese- authors of this article recall that there have always been ways to bypass state authorities positioned along the main road, by simply improvising one's way along footpaths ~~through the~~ thickets adjacent to the road.

War, a Rwanda-backed politico-military movement occupied main towns and arteries, while self-styled community defense groups commonly labelled 'Mai-Mai' controlled rural areas. Meanwhile, conflict-induced lack of maintenance meant that roads became unas-sailable, reducing access to markets and health centers (Van Herp et al., 2003).

Armed violence has continued since the formal end to the second war but without constituting a single 'war'. By the latest count, over 120 different armed groups operate in eastern Congo (KST, 2021). While the government in Kinshasa has significantly reinforced its influence over the east, central state authority remains tenuous (Vlassenroot and Raeymaekers, 2008). There are myriad power struggles between shif-ting—in both a compositional and a spatial sense—alliances of factions within and beyond the state apparatus that vie for control over land, resources, and strategic and profitable points of passage (Hoffmann et al., 2016; Verweijen, 2016).

Ongoing violence and patchy central state authority have formed the main justification for donors to continue to finance roadworks in eastern Congo, but now under the banner of 'stabilization'. This logic pre-supposes a clear-cut spatial division between areas under control of the state or armed opposition—correlating with road infrastructure and its absence (cf. De Vries, 2015). The broader UN stabilization 'philosophy' indeed defines 'inaccessibility' as a major problem in eastern Congo: 'Many areas are simply inaccessible, due to insecurity or lack of roads and basic infrastructure. This enables insurgent activity, and makes the establishment of economic activity, state security and law enforcement much more difficult' (ISSSS, n.d.:4). If 'inaccessibility' is a main source of instability, roadbuilding becomes a pivot of stabilization.

However, just as in the colonial era, eastern Congo's subversive soils render the area intrinsically resistant to stable transport solutions as envisioned by external actors, constituting, as one of the project man-agers for stabilization roads put it, an 'engineering nightmare'.[7] While donors assume that 'opening up' isolated areas through road rehabili-tation has permanent stabilizing effects, due to the properties of Con-golese weather and soils and the absence of continuous maintenance, infrastructural effects whither as soon as the donor funds dry up and the work crews leave. Transport engineers are well-aware of this. Con-necting the geomorphological proclivities of eastern Congo back to state-building efforts, the military and civil engineers interviewed for this project pointed out that *political* stabilization would ultimately be contingent on *soil* stabilization—replacing or intervening in the chemi-cal composition of the soil in order to render it a stable conduit for ul-terior political relations. One project engineer commented,

> Here in Masisi, labor-intensive road rehabilitation is basically throwing money away. The soil here is fragile clay, there's nothing to compact, there's no rocks, we'd have to import the soil from else-where or at least compact it with machine force, to make it stay a little longer. But these people shoveling away, in terms of road impact, it's nothing but filling the worst potholes until the next rains. Bandits love unpaved roads. If we'd do a good road, we'd have a bit more security in the middle term (interview, March 2019) (see Fig. 2).

As donors are unwilling to muster the USD 1 million a kilometer needed to pave rural roads, road rehabilitation typically takes the form of symbolic reconstruction: molding the clay back into flat surfaces at the end of the rainy season. Moreover, donors entirely abandon roads after a project—typically three to five years—runs out, moving on to the next road. Yet as soon as the donors pack up, heavy engines begin plying these roads, and the first rains begin trickling down, stabilization roads invariably lose their infrastructural power.

5. Road rehabilitation and circulation struggles

The World Bank's stabilization roadbuilding project STEP power-fully illustrates the transient and ambiguous effects of road projects in eastern Congo. STEP was announced on 11 February 2014 in the former headquarters of the rebel group M23 in Bunagana, only 39 days after its defeat. 'It was important for us to respond as fast as possible to the ur-gency of the situation', declared the Director of Operations for the World Bank in Congo. He announced that they would stabilize the area by rapidly rehabilitating roads and renovating administrative buildings, which would signal the return of 'the state' in former areas held by M23 (World Bank, 2014). However, STEP never brought the promised sta-bilization. To explain this, we zoom in on the micro level, analyzing the circulation struggles that expanding road networks intensified along the routes between Mahanga-Kaandja and Bihambwe-Kinigi (see Fig. 1). To trace the multi-faceted effects of road rehabilitation and expansion, we follow (Fairhead's, 1992) grid of analysis, looking at how roadworks affect rural inhabitants' security and livelihoods and shape control over access to wealth, labor and land.

5.1. Paths of extraction

For Fairhead, the main reason why expanding roadworks failed to bring about 'development' was that more roads connecting villages to the outside implied more road-side exactions by public authorities. Thirty years later, this dynamic remains unchanged. People in Kinigi explained that when the roads were bad, the *mwami* (customary chief), having the prerogative to tax people, would send out an itinerant representative with a megaphone each trimester to collect 300 *Francs congolais* (FC, Congolese Francs, approximately USD 0.15) from each household. Now that the road is in a better state, he has installed four roadblocks—one on each entry to Kinigi—where he demands FC500 (USD 0.25) per adult instead (focus group, April 2019). Administrative authorities from outside have also tried to capitalize upon improved roads by intensifying exactions. As the mayor of Mahanga stated wearily, 'now that the road is better, those of the Territory (adminis-trative level above that of Mahanga) will come to demand their *rapport* (money)' (interview, April 2019).

In addition to civilian authorities—and just as the theory of change of the UN's stabilization approach holds—the army has also taken an interest in the increased circulation along improved roads. While only the *mwami* used to exact taxes in Kinigi, soldiers too now raise check-points along the repaired road, taxing passers-by and their wares. As a farmer in Kinigi put it, 'Before, soldiers weren't interested in security along our roads because they were in such a bad state. Today, because we're no longer in the forest, they erect roadblocks' (interview, March 2019). In other areas in the Kivus, soldiers deployed along rehabilitated roads simply took over the roadblocks abandoned by militia (cf. Likota, 2016). Yet there is rarely a linear shift from armed group to army con-trol, as different armed factions engage in complex forms of accommo-dation and competition. In the area around Kinigi, two different factions of the Nyatura (designation for militia from a particular ethnic group) hold sway and around the Mahanga-Kaandja road, and the APCLS competes with Nduma Defence of Congo-Rénové (NDC-R) (see Fig. 1). These armed groups sometimes displace, sometimes collude with, but often complement existing roadside impositions by traditional, admin-istrative and military authorities. This is most obvious with roadblocks. In North Kivu, over 400 roadblocks exist at average intervals of 18 km, and roadside taxation makes up an estimated 25% of transport costs for vehicles and up to 50% for people carrying produce on foot (Schouten et al., 2017; cf. Ferf et al., 2014).

Road improvement also risks intensifying labor exactions in the form of *salongo*, or compulsory communal labor that is traditionally a prerogative of customary chiefs. In continuity with the colonial era, village elites in Zaire harnessed *salongo* to improve roads (Fairhead, 1992). However, today—as with direct exactions—we witness a

[7] Personal correspondence with project manager, September 2020.

Fig. 2. Transport engineers at work in Masisi.

pluralization of the authorities who lay claim to labor along rural roads. Around Kinigi, the army obliges passers-by to go and fetch water or firewood. To be exempt from this corvee, one can pay a sum of FC500 called *kibango* ('stick of wood'), which only very few people can muster on a daily basis (focus group, May 2019). But road projects can also undermine *salongo*. In Mahanga, the *chef de cité* (town authority) explained that each time NGOs introduced paid roadwork, it has been difficult for him to mobilize villagers to offer their labor for free for the maintenance of roads. While paid roadwork upgrades the road, 'after paid roadworks', he stated, 'people are hostile towards such exactions' (interview, April 2019). Hence paradoxically, external road projects may speed up the disintegration of the road by undermining mainte-nance. The *chef* therefore now resorts to mounting small roadblocks during the rainy season at those places where the road has become impassable. This allows him to require people to fetch logs to improvise causeways over the worst mudholes, or to pay to avoid the labor, showing how labor and monetary extortion are often closely entwined.

Armed groups also impose *salongo*. Take the Nyatura group operating around Kinigi, which harnesses community labor for small road repairs to enable a steady trickle of people and agricultural products that they can then tax. However, just as in other contexts (Otero-Bahamon et al., forthcoming), these rebel-imposed roadworks only affect stretches of rural footpaths far away from the main roads, not routes connecting the militia's zone of influence with roads under army control. Indeed, roadside exactions—whether of labor or money—are no longer restricted to main roads. Whereas state-associated actors predominate along main roads, a kaleidoscopic mix of rebels, government soldiers and traditional authorities erect roadblocks on the footpaths between fields and villages. This profoundly upends the distinction between main roads as paths of authority and 'ungoverned' terrains that Fairhead witnessed in the 1980s, and which continues to underpin contemporary stabilization strategies. Contrary to what these strategies assume, deploying soldiers along rehabilitated roads may lead to the displace-ment of exactions further afield. No longer able to tax road users, rural militia start levying all kinds of 'taxes' on the communities they claim to protect, as Nyatura groups and APCLS do around Kinigi and Mahanga. In addition, they may respond 'to their loss of extra-legal taxation points along the road with increasingly violent strategies of accumulation, namely killings, ambushes, and kidnappings – often directed at their own populations' (Vogel, 2015).

Militia's ability to extract revenues both along main roads and footpaths points to their fundamental ambivalence towards subversive soils and efforts to domesticate them. On the one hand, they often prefer inaccessibility for both strategic and political reasons. Roads may facilitate the rapid advancement of the Congolese army, which, depending on armed groups' relations with the army, threatens their income and influence. On the other hand, armed groups sometimes do want better roads, as this is a major concern for their civilian constitu-encies, who are often their relatives, former classmates, co-villagers etc. By extension, the perpetual sorry state of roads provides armed groups with steady ammunition to critique the government and justify their armed opposition—indeed, many political programs of armed groups mention the lack of basic infrastructure as a key grievance (Hoffmann and Verweijen, 2019). In addition, road projects are advantageous to armed groups where they can tax increased circulation or draw eco-nomic benefits from the roadworks—such as having their fighters or relatives be recruited as workers. Moreover, knowing the terrain and its affordances, they are likely aware of these roads' fleeting nature, which renders any increased threat only temporary.

5.2. *Paths of (food) insecurity*

Beyond increasing the direct appropriation of wealth and labor, we observed that stabilization road interventions also had contradictory repercussions on people's livelihoods for other reasons. Whereas all farmers in Kinigi saluted better roads to be able to transport their pro-duce before perishing, they did so with a certain hesitation. As one elder explained, 'if the road is in a bad state, particularly in the rainy season, there's no famine, because we can use everything we produce for con-sumption. But when the road is good, somehow we cannot help but sell too much'. Another farmer explained that when the road is decent, many local farmers oversell, leaving too little for household consumption. 'The mere presence of traders with *Fuso* trucks makes everyone sell, sell, sell!' (focus group, May 2019). Similarly, in Mahanga, people recalled that whenever the road was repaired, milk became scarce for local con-sumption because it was now sold at large regional markets. Overselling impacts the poorest most. As an interviewee explained:

> When we cannot transport our surplus, we do not hesitate to distribute some of our harvests, share it with poorer neighbors or

members of their family, or with those who had a bad harvest. After all, else it would just perish! (interview, April 2019).

The price increases that come with better market access also have mixed effects within villages. Again, the cleavage here is often one of class: the few people who own farmland see the looming profits of increasing prices, while those who do not own fields fear rising prices because they have to rely on the market for their subsistence. Contrary to the blanket approach of stabilization efforts, roads have stratified effects. As Fairhead (1992) already pointed out, they mostly benefit people who own land and have good political connections (see also Farhat and Hayes, 2013).

In contrast to thirty years ago, these connections now also include contacts with armed groups. The latter often grant people access to re-sources within the areas they control, such as farmland and hardwood, in exchange for 'protection money' (cf. Verweijen and Marijnen, 2018). Consequently, whenever armed groups' spheres of influence are recon-figured, including due to stabilization roadworks, people who depend on these groups for accessing land and resources may struggle to earn a living. Just like army officers and bandits, armed groups also 'provide muscle' to those embroiled in local struggles over land, for instance, intimidating their opponents (Verweijen, 2016). Whenever the price of land increases—which as Fairhead (1992) observed is often a by-effect of improved roads—the stakes of these struggles rise, which may spark violence. Indeed, one elderly villager, speaking on conditions of anonymity, explained that his daughter had been kidnapped after he refused to sell a plot of land coveted by local strongmen after road rehabilitation had made the land more profitable. 'In the end I was forced to sell the plot to pay the ransom, so they got what they wanted anyway' (interview, May 2016). Similarly, one inhabitant of Lushali, a small village near Mahanga, explained that 'the road repels the *ngila* ('gorillas', term for militia members) but *a muhengere kyaka*, a good road isn't always safe; it attracts the *batu wabaya*' ('bad people', a term designating certain ethnic groups that are associated with land-grabs by the majority Hunde population) (interview, April 2019). In sum, by leading to shifts in patterns of armed actor control and rising prices for land, road rehabilitation modifies access to and the ownership of land, with significant consequences for people's livelihoods. The effects of these shifts are highly uneven: there are both winners and losers, depending on people's class, gender and sociopolitical position and connections.

Shifting armed actor control can also affect people's livelihoods by leading to increased insecurity in remote rural areas. Women used to store nutrition 'in the field' (*kantsali*, literally 'granary on foot') instead of harvesting it, to make it less easy to ransack, either by state agents or their husbands Fairhead (1992). However, today, fields are frequently raided at night by 'unidentified armed people', who harvest corn, plantain bananas, potatoes and other easily lootable crops. Where road rehabilitation drives armed groups away from main roads and makes them lose out on the related income, such nightly raids may become more frequent. Rising insecurity also affects farmers' ability to cultivate distant fields. In Kinigi, Mahanga and Mumba, villagers told that whereas in the past, they spent the night in the outlying fields to prop-erly work the land, today they can only move back and forth during daylight in groups. In response to insecurity, many farmers have also transitioned to other crops. As people in Mumba explained, 'We don't even think of cultivating corn anymore!' (focus group, April 2019). Fear of stealing and other forms of insecurity prompt people to divest from crops which mature slowly or require much care—corn, beans and potatoes—in favor of low-maintenance, low value, aseasonal and long- storage crops such as cassava. Even though such low-maintenance crops are perfectly suited to thrive in the disrupted ecology of verti-sols, this often entails radical nutritional downgrading.

5.3. Navigating ambiguous terrains

Farmers' strategies to cope with growing insecurity draw attention to a crucial factor shaping the effects of stabilization roadworks: the ways in which the less powerful navigate the complex physical and political terrain of eastern Congo. In the late 1980s, Fairhead (1992) noted, men were afraid to walk along the main road, as they were likely to be robbed. However, women—in addition to men with a certain status and important political connections—were generally exempt from such ex-actions. Thirty years later, gender, class, social status and political connections still make an important difference for who gets targeted by exactions, when and where, and therefore, for how road users engage in circulation struggles along rural roads.

The main road connecting the village of Mumba to the mining site of Rubaya (see Fig. 1) is predominantly used by women. It is around nine kilometers long, taking 25 min on motorcycle or 1.5 h of walking. Women sell beignets and other foodstuffs along the road to the artisanal miners panning in the valley riverbed below. But women also are the ones who travel to Rubaya to sell any agricultural surplus. Why? Men, it is explained, are bothered and fleeced at the roadblocks between Mumba and Rubaya; moreover, they have to pay in cash. Women, by contrast, are allowed to pay in kind. Resultantly, women now assume most of the commercial tasks: selling for themselves and others, haggling, and bringing back merchandise to sell at a profit in Mumba (focus group, May 2019).

If main roads have become spaces of female circulation and male extraction, men have developed a different transport geography, moving to surrounding fields and mining sites along a dense network of small footpaths largely illegible to strangers. That does not mean women do not also use footpaths and tracks, for these are crucial to fetching water and firewood—certain tracks even seem exclusively associated to these 'female' tasks. However, men also use these spaces for movements over longer distances, to evade roadblocks (focus groups, Lushali and Kinigi, April and June 2019). When asked whether they have ways to circum-vent the dangers of the main road, all of the men we contacted responded enthusiastically that there is a whole web of footpaths in the hills, locally called *katirisa* (shortcuts or detours in Swahili), to shirk the roadblocks. In Kinigi, where road rehabilitation led to increased exac-tions by the chieftaincy and the army, men explained that:

> Our movements are reduced because of these roadblocks. We try to find deviations to bypass them. To get to Kibabi, we take a *katirisa* through the fields and hills via Bihula. But the day they discover this byway, they'll put up a roadblock along it at the bridge over the Mululu, and then we'll be finished (focus group, April 2019).

The increased extraction that comes with improved roads thus re-inforces a gendered 'division of movement' that road users have developed to mitigate the effects of predation. Yet the scope of this mitigation is limited by armed actors' efforts to counter the dodging of exactions. People in Mahanga reported that soldiers at the roadblock at Kibanda occasionally ambush the place where *katirisa* meet the main road, to discourage people from trying to evade their roadblock. Those who are caught are liable to be 'fined' USD 20 but may also experience worse. One focus group participant rolled up his trouser to show where a soldier had shot him dodging a roadblock. In the village of Kaandja further down the road, such violent repression has had success: 'we avoid the byways because they're surveilled. If we're caught, it's bad' (focus group, May 2019). From the perspective of the soldiers control-ling the road, movement along these footpaths is subversive not only because it challenges their authority and revenue generation but also because the men using them often move under the protection of militia composed of their extended kin. Asked for a comment, one soldier exclaimed, 'they're all bandits!' (interview, May 2019).

Aside from deploying gender-based tactics, (Fairhead, 1992) noted how people try to reduce roadside harassment by feigning importance or

a particular social status that allows them to claim exemption from taxation by, for instance, ostensibly carrying a bible. Women inter-viewed in Kinigi strongly agreed that how you are treated along the road depends on your *physique* (physical appearance): 'it isn't that *padiri* (priests) or other church folk are exempt; it is rather that if you look important, you'll be treated with more deference and hesitation' (focus group, April 2019). Men, laughing, agreed that if they use the main road, they generally wear their best. In addition, they often try to catch a ride on a vehicle or to affiliate themselves to an NGO, which tend to be exempt from roadblock payments (focus group, April 2019). The road can thus be likened to church on Sunday—you better dress well and prepare a bit of money to disburse along the way.

Another way in which people try to escape exactions is by harnessing or merely invoking personal connections in armed groups and forces, for instance, claiming to be a relative of the commander of the army brigade controlling the area. Yet this strategy is not always successful. As one female farmer explained, 'I am from the Hunde community so when I pass an APCLS roadblock I plead that they are my kin to reduce the taxes. But when one of them recognizes me, he will step aside discreetly and let those rebels who don't know me tax me instead' (interview, January 2018). Given the panoply of different roadside authorities, the politics of appearance and connections are contextual rather than structural, being shaped by the disposition and policies of whatever faction and in-dividuals control a roadblock at a given moment in time. Hence the changing configuration of control over roads—which is at times induced by stabilization strategies—rapidly changes the value of different cur-rencies of navigation. This undermines the possibility for these tactics of evasion and resistance to have longer-term effects. While often allevi-ating the burden for individual households *ad hoc*, overall, these tactics are not able overturn the structural patterns of wealth and labor exac-tions by state agents, rebels and chiefs along both roads and footpaths (cf. Verweijen, 2018).

6. Concluding thoughts: conceptualizing the infrastructural frontier

Revisiting Fairhead's pathbreaking analysis of the effects of road rehabilitation on rural security, livelihoods and authority in eastern Zaire, we conclude that nearly thirty years later, the main points of his analysis still hold: rehabilitating roads empowers variegated local au-thorities to extract wealth, labor and land. It therefore does not improve, but often imperils the livelihoods and security of the rural poor, in spite of the cunning and courageous ways in which they navigate circulation struggles. The increased presence of state agents along rural roads also does not necessarily translate into increased state control, given that these agents operate with considerable autonomy from their respective hierarchies. Moreover, in the present-day context of heavy armed group presence, state agents often engage in complex accommodations with local chiefs and militia, joining together in roadside taxations or dividing up spheres of influence, including over pathways and strategic bottlenecks along them. Therefore, depending on local power constel-lations, roadworks sometimes end up reinforcing rebel authority rather than that of the state. In sum, roadworks generally reproduce rather than upend the frontier-like features of the landscape of authority.

Donors nonetheless keep on pouring money into road projects, continuing a trend of externally financed infrastructure interventions that dates back to the colonial era. We have sought to explain this enduring pattern through the notion of the 'frontier effect'. Eastern Congo is situated at the material edge of the state owing to the unfin-ished quality of its road-infrastructural networks and the kaleidoscopic nature of configurations of authority and control. These two features constitute it as an 'infrastructural frontier' and invite continual aid in-terventions. By unearthing the temporal, material, and political char-acteristics of this infrastructural frontier, we have demonstrated how these external infrastructure interventions and their ambiguous effects are crucial for its very reproduction. These findings raise questions about the conceptualization of frontier spaces more generally.

Materially, we have drawn attention to how the affordances and proclivities of terrain shape both the frontier effect and circulation struggles. Our findings thus converge with the emerging body of work emphasizing the role of materialities in socio-political relations and processes of territorialization at resource frontiers (Bakker and Bridge, 2006; Childs, 2019; Peluso, 2018). In particular, we have shown how eastern Congo's ambiguous roads subvert established correspondences in theory and policy between political and material conditions. Congo's specific geomorphological and climatic features have various conse-quences. First, they blur the distinction between the presence and absence of roads, or between roads and footpaths: even national roads in Congo are often little more than wide, earthen, footpaths, leaving mudholes to signify the shortcomings of the state. Secondly, the qualities of eastern Congo's soil have political consequences. They render path-ways more permissive towards nimble barefoot-based mobilities, scat-tered livelihoods, and political projects based on local autonomy and independence from transport engines—what González-Ruibal (forth-coming) calls 'politics against infrastructure'. Yet these vernacular mo-bilities are still amenable to extractive projects, including by state agents. Therefore, politically, infrastructural frontiers are ambiguous terrains, where spaces of resistance and control enmesh, overlap or merge. These observations indicate that work on the political effects of infrastructure would benefit from engaging with the more nuanced conceptualization of political space and governance found in work on frontiers (Korf and Raeymaekers, 2013; Roitman, 2005). Indeed, rather than focusing on control and resistance as a clear-cut dichotomy grafted onto a spatial division between infrastructure-rich and infrastructure- poor zones, our findings suggest that it may be more useful to take sit-uated circulation struggles as an analytical point of departure.

A final set of consequences of the geomorphological properties of eastern Congo and similar settings (cf. Schouten and Bachmann, 2020) relate to how they feed into the infrastructural frontier's distinct tem-poralities. Just as roads in eastern Congo are not 'infrastructural', the political effects of road rehabilitation are not 'structural': they fade away after the last road worker leaves and the first rains start. Therefore, infrastructural donor initiatives ultimately merely reproduce and reshuffle, rather than transform, the militarized political economy. Yet because road building never significantly advances, armed conflict en-dures, and central state authority is never fully established, donors continue to consider road infrastructure rehabilitation and reconstruc-tion as necessary. In this way, eastern Congo's infrastructural frontier illustrates a broader 'paradox of infrastructures' (Howe et al., 2016); roads are dilapidated yet productive; more specifically, they are pro-ductive *because of* perpetual ruination. The perpetual impassability of roads invites continual external interventions justified in the language of 'state fragility', which generates a self-sustaining 'frontier effect'. This effect, in turn, is what makes eastern Congo and similar interventional settings 'infrastructural frontiers', where the temporary expansion of roads in one area goes hand in hand with their degradation in others, and all newly rehabilitated roads have ruins as their ultimate inescap-able destiny.

The temporalities of eastern Congo's infrastructural frontier invite us to rethink the temporal features of frontiers more generally, and how they are shaped by material properties. It is increasingly acknowledged that rather than unfolding in a linear or teleological manner, frontier dynamics can be 'a-rhythmic and cyclical' and that frontiers can emerge and vanish (Rasmussen and Lund, 2018: 380). Yet frontiers generally continue to be considered transitional spaces where eventually new regimes of property and authority emerge (Hirsch, 2009). Congo's infrastructural frontier shows that the liminality of frontiers is not al-ways transitional but may become perpetual. Dilapidated rural roads generate a perpetual frontier of intervention that has become an integral part of eastern Congo's political economy, hence its very constitution as a liminal space at the material edge of the state.

Zooming out, we observe that eastern Congo's infrastructural

frontier is also crucial for the reproduction of global political economic relations. According to our calculations, the World Bank has disbursed more than five billion USD on infrastructure in Congo over the past seven decades.[8] This money has not made many vehicles circulate on Congolese roads, but has instead mostly flowed between donor accounts, foreign contractors, government offices, and the private offshore accounts of Congolese officials. Road projects do 'integrate' eastern Congo in the world economy, but not by promoting 'market-oriented development'. Frontiers are commonly understood as being produced by 'the expansion of capitalism' through processes of commodification, privatization and enclosure (e.g., Cleary, 1993; Barney, 2009). However, in the case of 'infrastructural frontiers' that are in part constituted by donor interventions, this expansion occurs through different mechanisms. Rather than clearly concerning capitalist relations, these mech-anisms run through the 'aid industry' that crucially underpins the asymmetry of contemporary North-South relations (Dimier, 2014; Hickel, 2014). These complexities illustrate the intricate entwinement and at times blurring of capitalist and extra-capitalist relations in fron-tier spaces (Tsing, 2015) and how they map onto the equally blurred distinction between control and resistance in less than straightforward ways.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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