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## Electrifying the green peace? Electrification, conservation and conflict in Eastern Congo

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### ABSTRACT

Large-scale infrastructure in conflict-affected states is often seen as a crucial means to pursue economic growth, poverty reduction, and increasingly, peace-building. Legitimated by an emergent 'Business for Peace' agenda, a variety of private actors now also engages in such infrastructure projects. The Virunga Alliance is such an initiative which aims to tackle the interlinked problems of poverty, conservation and conflict in the east of DR Congo through commercialised hydro-power. To take stock of the politics unfolding around such infrastructure efforts, this article analyses the Virunga Alliance as a form of 'technopolitics'. This entails tracing how current is generated, distributed and consumed, and how these processes generate new sites of power and control. In describing how Virunga offers a centralised, more concentrated supply of electricity as an alternative to the decentralised charcoal circuit, we show how electrification contributes to the expansion of a form of capitalism that prioritises big businessmen over small farmers, facilitates rent-seeking by political elites and amplifies social inequalities in Congo.

### KEYWORDS

Democratic Republic of Congo; green economy; business for peace; nature conservation; electricity; peace-building

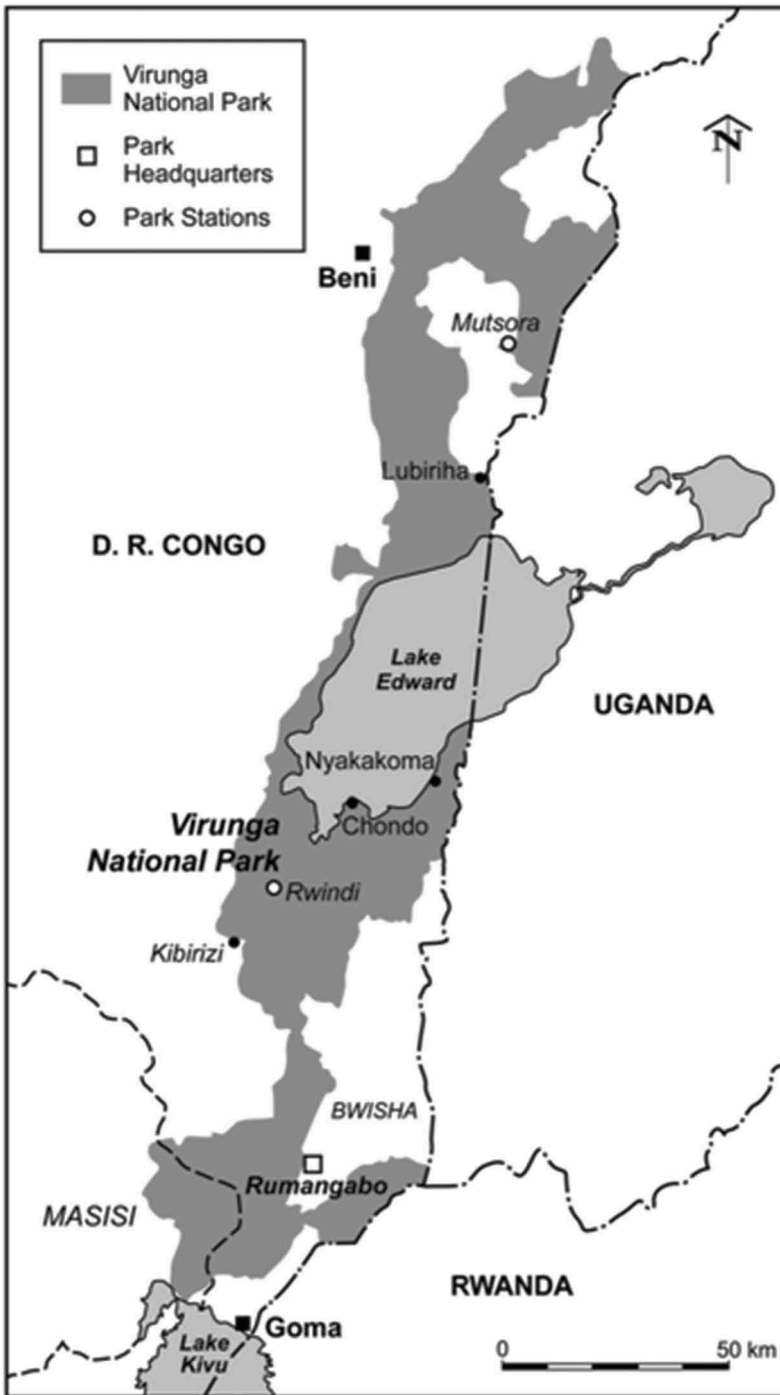
## Introduction

*Every MW of electricity generated empowers the community, by creating 1.000 jobs, 5–10% of which go to ex-combatants. When people are empowered they have the choice to control their future and move into productive society, away from armed groups.* Emmanuel de Merode, director, Virunga National Park.<sup>1</sup>

The story is compelling. Through the creation of seven hydro-electricity plants around Virunga National Park (see [Figure 1](#)), the park management aims to become self-sufficient financially by selling the generated electricity to rural households and businesses around the park. By attracting private businesses, the park hopes to generate thousands of jobs for the population living close to the park. Following soft counter-insurgency logic, the park thinks that by offering employment, young men will be lured away from armed groups, and the population will become aware that it has a stake in the park to survive, and will desolidarise themselves from the multiple rebel groups in

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**Figure 1.** Virunga National Park.

Source: The authors.

the park.<sup>2</sup> Moreover, by providing alternative cooking fuel, rural electrification should also lower the illegal extraction of charcoal within the borders of the park. To achieve this, the park management created a private enterprise, Virunga SARL, to execute the project, which channels revenues of the commercialisation of electricity back to the park.

This narrative is especially compelling, because it is set in the east of the Democratic Republic of Congo (DRC), a region that has been embroiled in successions of war, civil conflict and severe poverty for over two decades. The crucial role of electricity in bringing modern development is so deeply engrained in contemporary development thinking, so, to put it bluntly, who cares how exactly this common good is brought to conflict-torn Eastern Congo? However, as so often, the devil is in the details, and the overarching objectives of pacification and conservation risk ending in their opposites.

In this article, we analyse the Virunga Alliance's electrification scheme as an instance of 'technopolitics', a term coined specifically to study how technical and political programmes intersect. Technical systems, from this perspective, are literally charged with politics: infrastructures constitute a form of power,<sup>3</sup> they are imbued with a symbolic power that link up to expectations of modernity,<sup>4</sup> and their design, construction and rolling out have implications in terms of opening up or foreclosing political and economic possibilities, rearranging where it becomes particularly effective to exercise control.<sup>5</sup> Restated in such terms, the Virunga Alliance aims to divert the natural course of water, turn it into hydropower and distribute it in such ways as to rearrange a whole set of social, economic and political relations in Eastern Congo.<sup>6</sup> While it is difficult to argue against the Virunga Alliance's electrification efforts in principle, the unfolding of wires, poles and other technical elements across the Congo's landscape, it also encounters a variety of frictions, which can ultimately undermine the very goals it is laid out to achieve.<sup>7</sup>

In order to appreciate how electricity provision by Virunga SARL is charged with controversy and contest, we need to delve exactly into how this scheme works in practice. Although the project presented by the Virunga Alliance attracts extensive international political and financial support, electrification for conservation in reality plays out as the commercialisation of the electricity, channelling it towards elites and thus becoming part of the larger problem of privatisation and elite capture of Congo's valuable resources.<sup>8</sup>

While local dynamics of conflict, severe poverty and precariousness around the park allowed mobilising support for the development scheme, local populations affected by this predicament aren't (yet) able to profit from electrification. The latter rather seems to materialise as an instance of capitalism extending itself on the back of violent conflict and severe precariousness.

In this article, we argue that the concrete infrastructures put in place to achieve conservation and peace-building objectives, have physical properties which open-up a specific set of political possibilities yet foreclose the very conflict transformation they were set out to act as a conduit for. The hydropower infrastructures built by the Virunga Alliance take the shape of closed, centralised power circuits, limiting participants in production, distribution and channelling consumption to those who already achieved a certain level of political-economic power. Hence, to be able to profit from this new form of consuming energy requires certain material preconditions to be in

place, but also specific cultural properties of end-users, without which the newly flowing current will fail to translate into peace-building gains. Yet, those who fail to meet these set preconditions, and will not benefit from electricity, have livelihoods largely revolving around production and consumption in the more decentralised charcoal economy.<sup>9</sup> While thus producing concrete gains for some, the specific way that electrification and conservation are engineered forecloses ‘trickle-down’ effects that could lead to conservation (addressing deforestation) and peace-building.

In opting for commercial and therefore exclusive energy supply as a vehicle to achieve its objectives, the Virunga Alliance has swung into motion a powerful dynamic in which main rationale becomes making profit to pay-off loans, and in which trust of donors becomes paramount over trust of local populations. A lot of energy which could have been spent on community engagement is invested in generating yet more bundled electricity – and in providing ‘physical’ security of the hydro plant infrastructures. In the process, the ambitions giving rise to electrification are upended, becoming yet another instance in which Congo’s resources are appropriated by its elites.

This article is based on joint field research conducted by the authors, together with the Congolese researchers Chrispin Mvano, Janvier Murairi and Saidi Kubuya. We interviewed representatives of the Virunga Foundation, the ICCN and Virunga SARL. In this article, we focus on Virunga’s electrification scheme in Bwisha, which is one of the two *chefferies* in Rutshuru territory – where the hydro plant of Matebe is located (see [Figure 1](#)) and where preparations for a second hydro plant, Matebe II, are underway.<sup>10</sup> In multiple villages around the park, we interviewed people connected to the electricity grid, others who are not, customary and administrative authorities, representatives of local NGOs and small entrepreneurs. In Goma, we interviewed businesspeople and government officials. In addition, we analysed press releases and media reports on the Virunga Alliance and the electrification scheme. Moreover, both authors have worked in the region before, and the analysis in this article is also informed by earlier field research conducted separately by both authors.

This article proceeds as follows. First, we place the electrification scheme of the Virunga Park and its aims within the broader theoretical debates around rural electrification as a form of ‘technopolitics’. We especially focus on how these technopolitics intersect with the ‘business for peace’ agenda that has merged with neo-liberal conservation efforts in the case of Virunga National Park. Second, we situate the case within the colonial and post-colonial history of infrastructural politics, electrification and conservation blue-prints in the east of the DR Congo. We then move on to trace how Virunga’s electrification scheme materialises, following the specific way in which the infrastructures to generate, market and distribute bundled power lead to new economic and political opportunities for some while foreclosing certain other aspirations along the high-tension wires. We conclude with arguing that the promise of rural electrification – that it will contribute to peace and conservation – becomes effectively lost in translation in the way its infrastructures connected to the socio-political fabric of the Eastern DRC.

### **Electricity for conservation, business for peace?**

The vast Virunga National Park has a rich biodiversity and is draped around an ensemble of volcanoes, dense forest, savannah, Lake Eduard and the Ruwenzori

mountaintops. Moreover, it is inconveniently located right at the epicentre of a geography of complex patterns of (violent) conflict. Poaching, charcoal production, prospective oil exploration, illicit cultivation and livestock breeding threaten the park's biodiversity, including the emblematic mountain gorilla. What is more, armed groups use the park as a base, and catalyse illicit economic activities mainly for neighbouring populations, but also for their own profit.

Today, however, the challenges the park faces are mirrored by the creativity of conservation strategies that are deployed to protect the park's wildlife. Virunga's management deploys the full register of innovations in conservation: combining public-private partnerships, transnational alliances, commodification, big philanthropy, film star activism and aggressive militarism.<sup>11</sup> Under the leadership of de Merode, who is part of Belgium's aristocracy, the Virunga Park seduces donors – otherwise disenchanted with a history of failing peace-building initiatives in Congo – into banking his unconventional conservation efforts.<sup>12</sup> Unconventional, because the Public-Private Partnership (PPP) transferred the entire responsibility for the management of the park from the Congolese state institution for the protection of nature, the *Institut Congolais pour La Conservation de La Nature* (ICCN) to a British NGO, the Virunga Foundation. In addition to reinforcing law-enforcement in the park, the transnationalised park management adopted a business model to conservation. This is done through the 'Virunga Alliance', which is officially a public-private initiative – but in practice a nearly to complete privatised initiative.<sup>13</sup> Its aims are three-fold: generating resources for the park, contributing to sustainable development and peace-building.

The Virunga Alliance turned to electrification as one central tactic in their strategy to conserve the park. Evident in the preponderant resources allocated to it in the overall conservation strategy, the European Commission (EC) alone already decided to allocate over 46 million Euro for the period (2016–2020). How, one might ask, does a pillar of industrialisation help achieve nature conservation? The Virunga Alliance aims to build a total of seven hydropower plants, and electrification is portrayed as a silver bullet, achieving a number of disparate goals at once.

First, a steady flow of electricity should create jobs: alternative occupations specifically for those young men who now enrol in the armed groups that scourge the park. Currently many people living around the park solicit the protection of these rebel groups when they enter the park to produce charcoal, engage in fishing and agriculture.<sup>14</sup> Illustrating the weight Virunga's strategy attaches to hydropower as a pacifying force, De Merode often repeats the quote with which we opened this article: every megawatt of current equals a thousand jobs for potential spoilers. Based on a simple equation of conflict in the park with economic motives reminiscent of Paul Collier's 'greed' thesis, it is believed that if the population will 'gain' from the park they will desolidarise themselves from the multiple rebel groups.<sup>15</sup> Second, electrification is supposed to diminish pressure on the park by offering an alternative to charcoal as a source of cooking fuel. Third, hydropower is to translate into motor force, to jump start private sector development in the vicinity, again as a way to create a 'peace buffer' around the park. Indeed, Virunga sets the example itself: the hydropower installations are run by a corporate entity, Virunga SARL. Fourth, current should materialise as public lighting, to symbolise the positive impact of conservation on livelihoods of

surrounding populations. Finally, in the long term, electrification will add a durable source of financing for conservation.<sup>16</sup>

It is hard to argue that bringing hydropower to Congo is a bad thing. Livelihoods are notoriously precarious, and 89 per cent of the Congolese population (estimated at 80 million) have no access to electricity. While Congo has notoriously untapped hydropower potential, most of the hydropower it does produce is absorbed by the mining sector or exported. Instead, fuelwood and charcoal make up 93 per cent of energy use in the DRC, which has considerable negative effects on Congo's forests and protected areas.<sup>17</sup>

While it is beyond the scope of this article to do fully justice to the extensive literature on neo-liberal conservation – the extension and use of market-based approaches to nature conservation,<sup>18</sup> it is important to highlight that Virunga Alliance is an epitomic example of neo-liberal conservation (and peace-building). The existing literature describes how the focus shifted from how 'nature is used in and through the expansion of capitalism, to how nature is conserved in and through the expansion of capitalism'.<sup>19</sup> Only by overlooking its inherent contradictions, does the market-based approach to conservation followed by the Virunga Alliance offer solutions to a range of problems. The specific 'business approach to conservation',<sup>20</sup> is based on the idea that nature should be able 'to pay for itself', and that through ecosystem services and tourism for example, national parks can be financially self-sustaining.

While others have already criticised this idea extensively, our specific case extends this question by probing, should peace pay for itself, as well? The business for peace paradigm – increasingly carried by the UN Global Compact – seems to argue it does: it aims to thrust the win-win logic of business into the peace-building field, by arguing that business can (and should) 'do better'.<sup>21</sup> Part of Virunga's attraction is exactly that it is not a traditional aid implementer, but promises to deploy the efficacy and growth models of the corporate world to achieve peace outcomes.

### ***The technopolitics of 'green peace'***

How can we attend to the politics of 'green peace', the incorporation of (environmental) peace-building in a green economy agenda, when it operates through electrification? As so many conservation efforts are technical in nature, there have been some calls to establish a dialogue between critical conservation studies and Science and Technology Studies (STS),<sup>22</sup> which we aim to do in our analysis of the imbrication of the politics of electrification with conservation regimes. Our main theoretical point of departure is that electricity and large technical systems more generally, do not constitute a neutral background to society but actively participate in its constitution. Numerous studies underscore how unfolding technical systems intervene in controversies around who gets to participate in the usage of their benefits (whether in service or revenues), reconfigure lifestyles of communities and can render cleavages between conflicting groups more durable.<sup>23</sup> To wit, the field of STS was jump-started by Hughes, who called electricity systems 'networks of power' in his seminal history of electrification.<sup>24</sup> Subsequently, increasing numbers of social scientists have started to challenge the analytical separation between the technical and social, deploying such notions as 'technopolitics' and 'socio-technical assemblages' to instead foreground the



fundamental entanglement and co-constitution of technical and political worlds.<sup>25</sup> Foreshadowing a discussion continued in the next section, if infrastructure is most notable for its absence in Congo, infrastructure initiatives participate even more actively in circumscribing and rearranging social and political relations,<sup>26</sup> and it should come as no surprise that the spectre of ‘modern’ infrastructure haunts both Congolese politics and popular discourse.

The central insight from STS we take with us to analyse Virunga’s efforts to achieve peace through electrification, is that infrastructure is ‘lively’:<sup>27</sup> while denoting the realm of the passive, fixed and concrete, infrastructure actively intervenes in, and often has surprising effects on, society, eluding the neatly schematised intentions and expectations with which they were conceived. The gist of this article is, then, to investigate the political tensions that build up around the unfolding technical system, that connects the Virunga Park to its surroundings – in ways that might escape the control of those who started it. In order to appreciate the politics of electrification, it is necessary to follow the production and circulation of current itself.<sup>28</sup> Before providing an overview of the main tensions that emerge along the infrastructures through which Virunga aims to electrify peace in Eastern Congo, the next section turns to examine the way that infrastructure and power are entangled historically in Congo.

### **The historical context: Congo’s political infrastructure**

In order to appreciate the stake that electricity forms in Congo, it is necessary to understand its historical backdrop. A century ago, Belgians regarded infrastructure as their key tool to exploit and ‘civilise’ what they portrayed as ‘backward’ populations.<sup>29</sup> The colonial administration embarked on huge railway, telegraph and electrification schemes, crowned by the Inga hydropower dam, which was portrayed as turning one of the great bottlenecks of Congo’s challenging natural environment into the largest victory of colonisation.

Large technical systems, radiating outward from a rational colonial centre of power, afforded a measure of centralised control over local society, disrupting hitherto more decentralised and thence difficult to govern alternative livelihoods.<sup>30</sup> Rural electrification, in particular, was central to colonial policy: both to power up agricultural output, to fix rural populations into place and to stem the urbanisation of the later colonial period.<sup>31</sup> Admired, in the 1950s, for being the most industrially advanced of European colonies, Belgian Congo has since come to be regarded as both a poster-child of infrastructural modernisation and brute violence.

This also applies for the approach the Belgians created national parks in Congo. Virunga National Park, at that time Albert National Park, was designed and implemented following a blue print approach, whole villages and populations were removed to create the park in 1925. While the colonial park management was perceived as one of the best working institutions in the colony, the population regarded the park management mostly as coercive and violent.<sup>32</sup> In independent Congo, the connection between infrastructure and predatory rule remained strong. In a powerful analysis, James Fairhead called Mobutu’s roads ‘paths of authority’.<sup>33</sup> Having spent 20 months in a small village close to Virunga he noted that improved roads did not facilitate access to



markets for small local agricultural producers, as was expected, but rather served the interests of state-supported elites, by extending their reach to more activities to tax. Contrary to conventional ‘development’ wisdom at the time, Fairhead noted how people actually preferred to avoid new roads.

Equally, the extension of infrastructure often goes hand in hand with the private appropriation by political elites of the most valuable resources. The central role of infrastructure in channelling donor money towards private pockets was epitomised in Mobutu’s ‘white elephants’: huge, shiny and utterly useless infrastructures that crumbled quickly – useless except for appropriating the resources during the process of construction.<sup>34</sup> That this is a timeless problem in relation to infrastructure is illustrated by a 2010 World Bank paper which underscored that ‘the fact that such private agendas are often ignored goes a long way toward explaining why infrastructure policies fail and why best practice can be counterproductive’.<sup>35</sup>

The association between infrastructure and development remain as complex today. On the one hand, Congolese attach symbolical value to infrastructure development. However, in practice, those modern infrastructures that exist in Congo are largely lodged within privatised enclaves, mostly around the highly securitised spaces of industrial mining concessions and humanitarian hubs.<sup>36</sup> As we highlighted earlier, most of the hydropower Congo generates is equally diverted towards such enclaves of modernity. Most Congolese largely live with, through, or despite, the ruins of Belgian colonial infrastructure, and have adapted their survival strategies to the disassembly of colonial infrastructure and its attendant visions of order.<sup>37</sup> This means, as we have noted, that 93 per cent Congolese today rely on charcoal and fuelwood as their main source of energy; the generation, distribution and consumption of which is informal, artisanal, fragmented and decentralised – a nightmare for states with aspirations to control and tax energy in a centralised fashion. On the other, infrastructure today also retains some of the connotations of control and imposition that pervaded throughout Congo’s turbulent history. From 2008 to 2012, the joint UN/Congolese stabilisation strategy explicitly envisioned roads, government buildings and other large-scale infrastructures as a central tool to extend state authority and security across conflict-ridden eastern Congo.<sup>38</sup> To indicate how charged such infrastructural interventions are, Congolese have in the past resisted and rebelled against such extensions of technical systems in their life worlds.<sup>39</sup>

### ***From building stability to electrifying conservation***

In some ways, Virunga’s efforts to electrify eastern Congo resonate with the UN’s approach to infrastructure. Except now its not stabilisation, but conservation, which underpins the drive for infrastructure. Yet in both agendas – stabilisation and conservation – infrastructure is militarised, as the built environment is military harnessed to achieve peace-building outcomes. Initially the Virunga Alliance saw electricity as a tool to halt the deforestation driven by charcoal production, while more recently it realises that this wouldn’t be achievable due to the high price set for the electricity. However, it is still believed that hydro-power should help transform criminal economies that destroy the park into peace economies, specifically by offering current combatants future options of more sustainable activities. The UK’s development finance

institution, CDC stated in a press release that the electricity of Matebe should reintegrate between 5,000 and 8,000 combatants into ‘productive activities’.<sup>40</sup>

To the extent that Virunga’s objectives and paradigm resembles that of the UN, the latter’s experience can offer some caution to the former. While the spectre of centralisation and the efficient projection of state power loomed large over the large-scale stabilisation-cum-infrastructure efforts of the UN, its effect has often been simply that it became easier for Congolese army and police agents to go out and cream off agricultural and mining surpluses. This, in turn, has led to instances where local armed groups actively resisted and targeted UN-sponsored infrastructure works.<sup>41</sup> While only succeeding to a limited extent, international interveners made the built environment complicit in efforts to achieve contested outcomes. Contested, because the sponsored infrastructure projects supported the extension of a predatory, and by now illegitimate, central state authority, thus echoing the lessons that Fairhead cautioned for almost three decades ago.<sup>42</sup> In the meantime, most donors have abandoned infrastructure as a main tool to stabilise Congo, turning back instead to governance and dialogue.<sup>43</sup> Subsequently, most of the stabilisation roads have collapsed again, tortured by heavy rainfall and surcharged trucks.<sup>44</sup> The main lesson has been that infrastructure alone does not beget peace: it rather depends on how infrastructure is delivered, and what it is subsequently used for.

### Theory of change vs infrastructural relations

Today, a set of metal poles can be seen in Bwisha (see [Figure 1](#)), cutting through the landscape at a rhythm dictated by equal distances. The poles along the main roads have lamps illuminating their surroundings, keeping the insecurities associated to the nighttime darkness at bay within a fixed radius. ‘De Merode’, locals answer without exception, ‘is the one who brought the light’. Utility infrastructures generally have a strong association to public authority: as Geenen observed in Butembo, a Congolese town not far from the Virunga Park, lampposts are ‘vectors of power’; who brings electricity, and who controls the switch of public lights, enjoys public authority.<sup>45</sup>

Locals along the power line are united in their praise for public lighting. In an area where criminality is rife, main streets now thrive with nightly activity and the perception is that crime has gone down. Local businessmen eagerly turn the stable current into cold drinks, ground cassava flour, music blasting through speakers or a quick haircut on the way to church. Some poor people, in a bid to demonstrate belonging to a luminescent modernity, have gone out of their way to become the first in their neighbourhood to be connected. A leader of a small displaced Batwa (‘pygmy’) community, surviving on humanitarian aid on the outskirts of Rutshuru town, felt that now he was connected, he belonged to the ‘first class citizens’.

Below an illuminated surface of electrified joy, however, lurk shadows of disquiet. In the following, we outline four unexpected tensions which arise along Virunga’s electricity wires – tensions that might upend the intention to reduce the pressure on the park and to contribute to stability. The first concerns illuminated class differences, or how electrification amplifies pre-existing cleavages. This also ties into, second, the question of control afforded by particular energy infrastructures. Contrary to the decentralised charcoal economy which prevails, Virunga’s hydropower infrastructures are engineered in such

a way that they concentrate and bundle the power to decide on distribution and consumption in select locations. This initially unintended infrastructural translation of electricity into political power for a select group of wealthy and well-connected entrepreneurs in the regional capital Goma, is the vehicle through which conservation becomes the engine behind the consolidation of a particular brand of crony capitalism. The third concerns the extension, through electricity wires, of the reach of the highly contested and predatory Congolese state, amplifying its taxation power into Congolese households. Fourth, by invoicing through pre-paid electricity metres, Virunga pioneers the introduction in Congo of a model of energy consumption in which basic services become further dislodged from 'rights' to consumer 'responsibility'.

### ***Illuminated class differences***

Virunga has extended high-tension electricity wires from its hydropower plant in Matebe to a range of localities in its near vicinity. While Virunga's electricity is on offer to anyone within reach of its wires, in practice, only those who are able to afford the connection fee of US\$ 292 for 6 amperes up to US\$ 902 for 32 amperes plus additional installation fees, will benefit from current power. As a civil society group agreed when we asked them about who of their community was already connected: 'for 80% of our community – simple subsistence farmers living in mud huts – electricity is as far removed from their reality and aspirations as a jumbo jet'.<sup>46</sup> While the Virunga Alliance aimed at illuminating all households around the park to reduce charcoal consumption, the vast majority of people living around the park can simply not afford to be connected. As a result, the availability of current has literally illuminated class differences among the haves and the have-nots. Different interlocutors uttered their concern that only the '*classe noble*' of the area can afford current, thus casting a shadow of doubt on the socially transformative effects associated to light. In some cases, these illuminated class differences map onto pre-existing cleavages separating communities who feel disproportionately victimised by the park's policy against encroachment.

Moreover, lighting cables follow the main provincial road, around which – since colonial times – populations have clustered. The closer to the road, the more prosperous the tenants, because all the opportunities of trade and the location of public authority entangle around the spaces of circulation.<sup>47</sup> For those further away from the grid, the pricing of current discriminates against those who should be the main intended beneficiaries: poor people who make a semblance of a living off producing charcoal and youngsters joining armed groups because limitations imposed by the park foreclose alternative livelihoods. In most rural villages only few people are connected to the grid; in Kiwanja the largest agglomeration in the area only 5,000 out of 65,000 have been connected, that is only 7.7 per cent. While this might increase in the future, we thus far witnessed cases of people instead demanding to get disconnected and to remove the cash-power machines from their homes. Some people even tried to sabotage or demolish the devices, and Virunga SARL brought a few people who did so to court.<sup>48</sup> As it now stands, the current generated by Virunga far exceeds local demand: from the 13.2 MW produced, there is currently only an offtake of 3 MW.<sup>49</sup> Virunga initially envisioned that its electricity should be consumed by surrounding populations and the local private sector, but these envisioned 'industries' failed to take off at the speed the Virunga Alliance

expected, meaning that besides the rotating teams of youngsters Virunga SARL itself employs in a subsidised public works scheme to showcase its success, very little employment (and thence reduction of armed group activity) is visible.

Moreover, the electrification intensified land speculation in the *chefferie* of Bwisha, in Rutshuru territory. As the value of plots of land now within reach of electricity infrastructure increased considerable, compared to other areas, this stimulated elites to engage in land grabs, which reinforced existing ethnic tensions in the region, with clashes and displacement as result. Not only between communities, but also within families: as one man argued, ‘most of the people in this area are peasants, so they cannot afford it. Some people sell a part of their land to be able to get connected to the electricity, this create conflicts within families’.<sup>50</sup> As such, while the initiative contributes to rural electrification in some areas around the park – with various positive effects for the livelihoods of the households that have electricity – the politics around the distribution of electricity set in motion various conflicts between different actors who were not involved in the setting up, and execution of the project.

Moreover, an additional hurdle emerged for people that were fortunate to be able to connect to the grid. While they received the first year ‘free’ electricity, some say they realise that this was actually included in the high costs to become connected.<sup>51</sup> After this free period, the cash power machines were installed, which allows power to be paid in cash, much as prepaid mobile phone credits, this caused great concern among the people connected because only at that moment they realised the actual price of the electricity, some small enterprises consider to turn back to generator use, and households stop using the electricity to cook their meals and return back to using charcoal. While worries about this price of electricity spreads, a representative of Virunga SARL argued that this price per kilowatt was clear from the beginning, yet, for somebody never been connected before – to hear these numbers was abstract, and instead the followed the marketing that presented the electricity would be ‘cheap’.

*To cook on electricity was good during the first ‘free’ year, but now with the cash power it is too expensive to cook on electricity, and we’ll go back to use of makala (charcoal). We hope they will propose something else, and change the price. One men charged for 50 dollars, and used it within a week, while he thought it would last for a month.*<sup>52</sup>

In a collective effort, 109 people connected to the grid wrote a public letter to express their complaints to Virunga SARL, and different government institutions, as they did not have access to other procedures to address their complaints to the electricity company.<sup>53</sup> Yet, in a response a representative of Virunga SARL says the high price is unavoidable as they are pressured to pay back the loans for the construction in the next 25 years.<sup>54</sup> As a result, many people that made a large investment to be connected to the grid don’t have access to electricity anymore due to the price, regretting their hefty investment. The price of electricity is three times higher than another small-scale hydro power project operated by a non-profit, Mundo Justo, also operating in Bwisha. This Congolese organisation originally presented the project of the large Matebe hydro plant to a representative of the EC in Goma, which it wanted to run as a social project. Yet the latter took the idea and presented it to a representative of the European Commission, who passed the proposal to the Virunga Foundation, who developed it as a privatised project under the Virunga Alliance.<sup>55</sup>

### *Privatising a public good*

During most of the twentieth century, infrastructure services were provided by the state: in Congo, electricity, as railway transport, roads, and water, was hosted in public utility companies. Large technical systems have the specific advantage that they are easy conduits to centralised control, making them seductive for colonial regimes, multi-nationals and ambitious governments alike – and indeed for an organisation trying to provide an alternative to eastern Congo's radically decentralised charcoal economy. Instigated by Virunga's management, we witness the first privatised initiative to generate and sell concentrated electricity, thus constituting an alternative to the faltering state-owned SNEL, which hitherto held a monopoly over electricity provision.

While in principle Virunga aims to distribute its current to populations surrounding the park – thus maintaining a 'social' component to delivery – current far outstrips local demand. This poses an unexpected problem: Virunga SARL desperately needs to sell its current elsewhere in order to recover its investment in the hydro-power installations. For a specificity of electricity, unlike oil and other derivative forms of natural resources, is that it cannot be stored and used later, so production and consumption need to be carefully synchronised.<sup>56</sup>

Epitomising this as an opportunity, the wealthiest and best-connected businessmen of Goma have set up an electricity distribution company that will have a monopoly on selling Virunga's current in the provincial capital of North Kivu instead, called *La Société Congolaise de Distribution d'Eau et d'Electricité* (SOCODEE).<sup>57</sup> In effect, establishing this direct line of current to Goma's big businesses was only possible, because in June 2014 the government overturned a colonial-era law, which stipulated that current can only be distributed by public utility companies and that the generation and distribution of electricity cannot be in the hands of the same entity.<sup>58</sup> Interviews with a company representative and other entrepreneurs in Goma learnt that they envision directing Virunga's current to a select number of large clients – not incidentally, their own hotels and other large companies, in which the presidential clique is widely thought to hold important economic, and thence political, shares.<sup>59</sup> Wealthy Congolese and their expatriate clients aside, the rest of Goma's inhabitants will have to continue to rely on faltering public electricity – which might see their revenues reduced and will be less able to service maintenance to economically modest users.<sup>60</sup> Whereas the Virunga Alliance argues it can turn the war economy into a green peace economy,<sup>61</sup> using its electricity infrastructures to channel current towards the wealthiest businessmen in Goma will have little impact on the dynamics of the war economy of which these business people form an inherent part.

Virunga's electricity experiment generates more tensions across the public-private divide. The expanding range of power plants and related physical infrastructures represent high concentrations of capital investment, and therefore also magnificent sites for disruption. This means that they require higher measures of security than Virunga had hitherto used. In order to secure this large technical system, the company relies on the Congolese park rangers working for the ICCN to guard and monitor the premises.<sup>62</sup> While rangers themselves are state agents tasked with the conservation of biodiversity they are de facto being diverted towards guarding infrastructure under Virunga's privatised business for conservation approach.

### **Empowering the predatory state**

In a highly unusual turn of events, President Joseph Kabila was personally present at the inauguration of Matebe in December 2016. The reasons behind his presence were manifold, but multiple interviewees insisted that Goma's business elite had pressured the President to allow Virunga to distribute in Goma via SOCODEE; Kabila had relented at least in part because a few of these same businessmen manage a substantial portion of the Kabila family's assets in the area – including a new Goma hotel project of the President's wife – a project that was finally put into motion only after the Matebe power plant had been announced.

But there are other reasons why public figures align with the privatisation of electricity. The Congolese government has notorious difficulties to tax its citizens and to collect revenues 'officially', while panoply of state agents collects multiple taxes through various roadblocks and other informal arrangements.<sup>63</sup> From the perspective of the central government in Kinshasa, it is a lot easier to monitor and tax one large corporation, then to have thousands of tax agents roam the countryside to try and tax large numbers of smaller entrepreneurs.<sup>64</sup> For tax-collecting branches of the Congolese state, Virunga's concentrated energy infrastructures therefore present an opportunity compared to the decentralised charcoal economy on which most Congolese rely. The virtually impossibility for strongmen to impose centralised restrictions or taxations on the charcoal economy make it a popular livelihood in Congo,<sup>65</sup> yet simultaneously a subversive one, in the eyes of those aiming to exercise control over populations, taxation, or energy consumption.<sup>66</sup> Rerouting energy production, distribution and consumption through centralising hydropower infrastructures would from this perspective intervene in positive ways. Indeed, state taxation is simply folded into the pricing of Matebe's current towards its customers.<sup>67</sup>

While some would hail this development as an extension of service delivery, state authority, or even state-building, locally it is rather perceived as the extension of a contested and illegitimate state. As ever so often, the extension of centralising infrastructure goes hand in hand with the spread of illicit taxation, through the multiplication of roadblocks for example.<sup>68</sup> Ultimately, the most tangible outcome of the expansion of energy infrastructures around the park has been increased economic activity and thence more informal taxes and roadblocks, instead of the envisioned conservation and peace-building by the Virunga Alliance.

### **Economies of hope: creating neo-liberal environmental subjects**

*Electricity will not change people's opinion about the park, because the electricity is too expensive. We thought it would be a present because we are the neighbor and the victim of the park, we though electricity would come as a compensation, but to the contrary, it is a catastrophe. In the meantime, animals still raid the crops on our fields, and we do not receive any form of compensation or help to chase the animals away.*<sup>69</sup>

A last facet of how electrification leads to tensions relates not to the effects that the particulars of distribution have on the possibilities to bundle taxation and consumption, but rather to the requirements built into the devices through which end-users interface with their own energy consumption. Households and small businesses who pay to



connect to Virunga's current receive a yearlong of unlimited power supply; after this year, however, Virunga's mechanics come and install the cash power machines. The arrival of the 'cash power' system in people's homes and businesses should 'teach' them to use electricity 'responsibly', within their budget. As Von Schnitzler analysed the governing effects of pre-paid water use and describes how it was the aim of the government to re-educate the citizens of Soweto as good citizen.<sup>70</sup> She argues that prepaid systems, produce subjects aligned to neo-liberal reforms that are aspired by the government, pushing them into a certain ideology of responsabilisation,<sup>71</sup> or what Gupta calls 'precarious power'.<sup>72</sup>

An expatriate working for Virunga SARL reacted by saying that these small business men will need to learn how to make a proper budget, business plan and acquire accounting skills. For that aim, the company constructed an impressive, large shiny building next to their hydro-power installation. The building is called a 'business center' and in the rural surroundings of Matebe it is unique of its kind. Not only is the building clearly meant to impress visitors and to project both power and transparency through its reflecting floors and many glass windows, it also opens up onto a curated view of Virunga as a manageable wilderness: constructed gardens, artificial waterfalls and perfectly cut grass. In the middle of Congo, it conveys a sense of surrealism – a powerful impression, as a European diplomat told, after the park arranged a guided tour for representatives of various European embassies: 'It is very impressive, and it looks like if you are in Rwanda, not in Congo. Everything works and is proper. That they managed to build something like this in Congo is impressive'.<sup>73</sup> Everything in Matebe conveys the message to its foreign investors that it manages to realise concrete gains in Goma, and that it brings 'modernity'.

Yet, Matebe's second goal is to churn out eco-rational subjectivities:<sup>74</sup> here, the subjectivities are forged with should properly accompany the ecological and economical modernity that Virunga sells as the future of Eastern Congo. Electricity's transformative power is not self-evident, and Matebe is used to train small businessmen to develop the right skills, attitudes and approach to life required to succeed with their newly gained electricity. Yet, as we have seen till date it is especially the imaginary of success that is currently being sold to investors, donors and small businesspeople. As Büscher argues, success is a particular commodity, which depends on marketing capabilities; 'success, in short, needs to be sold, especially in the context of contradictory and complex empirical realities'.<sup>75</sup>

## **Conclusion: the technopolitics of green peace**

According to the European Commission the Virunga Alliance already achieved success; 'Virunga is an example of how ecosystem services – from the forests and water that provide for hydropower to conservation of wildlife and landscapes for tourism and sustainable production – can be effectively harnessed to enhance peace and prosperity in the wider community'.<sup>76</sup> Pressured to pay back loans to the investors in the hydro-plants, the electricity is sold to donors as 'social'/basic good but bought by Congolese as a 'luxury' good, becoming appropriated creatively by settled classes in Congolese society.



However, those affected by its local operations challenge the idea that conservation, and peace-building, should be a privatised enterprise. In their experience, the influx of private capital with a progressive face largely translates into better-enforced exclusion from lands and enclosed resources which they need for everyday survival. In a few local news articles, a part of the population calls upon the park management to return to what they believe was the initial aim of the project; to diminish the pressure on the park by offering an alternative to the use of charcoal.<sup>77</sup> Yet, due the elevated price of the electricity charcoal consumption did not diminish.

Instead, in deploying the centralising powers of large technical systems, the setup ends-up sharing some of the characteristics of other forms of enclaved infrastructures which extract, bundle and channel natural resources away from local populations – a mode of action which Hannah Appel aptly labelled ‘infrastructural violence’.<sup>78</sup> By analysing the electrification scheme of the Virunga Alliance through the lens of technopolitics we unravelled how the particular characteristics and the implementation of the scheme effectuated certain political and social-economic effects. Effects that are contradictory to the stated aims of conservation and peace-building. Forcing a centralised electricity scheme, to counter the radical decentralised charcoal economy, failed because the former is of central importance to the livelihoods of many living adjacent to the Virunga Park. Moreover, the centralised scheme created possibilities for the Congolese state and aligned business men to profit, rather than the rural population. The idea of ‘green peace’, the incorporation of (environmental) peace-building in a green economy agenda, is in the case of the Virunga Alliance mostly a powerful narrative to attract donors and investors, instead of effectuating meaningful change for the people living in the conflict affected area of north-Kivu. These findings should prompt further inquiries in other privatised (environmental) initiatives, which operate in war zones under the business for peace agenda.

## Notes

1. European Commission, ‘Virunga National Park’.
2. Verweijen and Marijnen, ‘The Counterinsurgency-Conservation Nexus’.
3. Mann, ‘The Autonomous Power of the State’.
4. Edwards, ‘Infrastructure and Modernity’.
5. Mitchell, *Carbon Democracy*.
6. Paraphrasing Mitchell, *Carbon Democracy*, 8.
7. We here deploy ‘friction’ both as an anthropological and military-strategic concept. For Carl von Clausewitz, ‘friction’ is the difference between war on paper and actual warfare; it concerns that portion of unintended and unforeseen reality which skewers plans. For Tsing (*Friction*), friction is similarly the productive engagement with the real world through which globally travelling ideas come into reality – but again, often to effects unforeseen by their protagonists.
8. e.g. Platteau, ‘Monitoring Elite Capture’.
9. Marijnen and Verweijen, ‘Pluralizing Political Forests’.
10. Virunga already operates another, more modest, hydropower plant in Mutwanga, located further north in the park; construction of another plant was halted due to attacks by a rebel group; see Misser, *Parc Des Virunga*.
11. Marijnen and Verweijen, ‘Selling Green Militarisation’; Marijnen, ‘Public Authority and Conservation’.

12. Marijnen, 'The "Green Militarisation" of Development Aid'.
13. African Energy Intelligence, 'Prince in Power Deal'.
14. Verweijen and Marijnen, 'The Counterinsurgency/Conservation Nexus'.
15. Interviews with Virunga foundation, 2015–2017.
16. Ibid.
17. Behrendt et al., *Deforestation Trends*, 4.
18. Büscher et al., 'Towards a Synthesized Critique', 4–30.
19. Ibid, 4.
20. Holmes, 'Biodiversity for Billionaires'.
21. Schouten and Miklian, 'The Business-Peace Nexus'.
22. See Smith and Stirling, 'The Politics of Social-Ecological Resilience', for an overview.
23. Barry, *Material Politics*; Shamir, *Current Flow*.
24. Hughes, *Networks of Power*.
25. Mayer et al., *The Global Politics*; Mitchell, *Rule of Experts*.
26. Schouten, 'The Materiality of State Failure'.
27. Amin, 'Lively Infrastructure'.
28. paraphrasing Mitchell, *Carbon democracy*, 8; Gupta, 'An Anthropology of Electricity', 563.
29. Schouten, *Private Security Companies*, chapter 4.
30. Scott, *Seeing Like a State*.
31. Clerfaÿt, *le développement énergétique*, 322.
32. Nzabandora, *Les leçons Des conflits*.
33. Fairhead, 'Paths of Authority'.
34. Verhaegen, '*Les safaris technologiques*'.
35. Benitez et al., 'Dealing with Politics'.
36. Schouten, 'The Materiality of State Failure'.
37. De Boeck, 'Inhabiting Ocular Ground'.
38. Bachmann and Schouten, 'Concrete Approaches to Peace'.
39. See Verweijen, 'Luddites in the Congo'.
40. CDC, *CDC Investment*.
41. UN GoE, *Final report*, 66; see Bachmann and Schouten, 'Concrete Approaches to Peace'.
42. Fairhead, 'Paths of Authority'.
43. Interview, ISSSS, Goma, May 2017.
44. Ibid.
45. Geenen, 'Light, Dark'.
46. Interview, Kiwanja, May 2017.
47. Fairhead, 'Paths of Authority'.
48. Nsapu, 'RDC:Des compteurs de Virunga'.
49. Interview, Virunga SARL, Matebe, May 2017.
50. Interview, Kiwanja, May 2017.
51. Ibid.
52. Ibid.
53. Sauti Ya Congo, '109 abonnées'.
54. Tsongo, *le prix Du courant*.
55. Interviews, March 2017.
56. Gupta, 'An Anthropology of Electricity', 556.
57. Interviews, Goma and Kiwanja, May 2017.
58. See Law No 14/011 of 17 June 2014 concerning the Energy Sector.
59. See CRG, *All the President's Wealth*.
60. compare Butterworth and de la Harpe, *Grand Designs*.
61. Interview Virunga Foundation, May 2015.
62. Interview, Matebe, May 2017.
63. Schouten et al., *Everything that Moves*.
64. Interview, businessman, Goma, May 2017.
65. Schure et al., 'Institutions and Access'.

66. Marijnen and Verweijen, 'Pluralizing Political Forests'.
67. This also explains why Matebe's current is more expensive than the current generated through some other power plants in the region: these were built as social projects and therefore exempt from taxes.
68. Bachmann and Schouten, 'Concrete Approaches to Peace'.
69. Interview, farmer, Rumangabo, May 2017.
70. Von Schnitzler, 'Traveling Technologies'.
71. Ibid.
72. Gupta, 'An Anthropology of Electricity', 561.
73. Interview, European diplomat, Goma, April 2017.
74. Goldman, 'Constructing an Environmental State'.
75. Büscher, 'Selling Success', 81.
76. Ibid.
77. Tsongo, *le prix Du courant*, and Zoom Eco, 'RDC, centrale de Matebe'.
78. Appel, 'Walls and White Elephants'.

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