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The potentials of carbon markets for infrastructure investment in sub-Saharan urban Africa

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Even though sub-Saharan Africa has contributed little to historic greenhouse gas (GHG) emissions, the continent is at the forefront of global climate change impacts and decarbonization imperatives. Such dynamics prompt the need to question where the financing for rapid construction and transformation of urban infrastructure systems that respond to emerging efficient, low carbon and long-standing developmental objectives should come from. This paper examines the potential role of carbon financing in the form of the Clean Development Mechanism and the growing critiques from across the continent and beyond in relation to this financing pathway. It argues that carbon market-based responses to mitigation generate a series of problems, flawed logics and failures in the capacity of towns and cities to address low carbon, urban futures and should be replaced through a shift to financing based on climate debt reparations.

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Introduction

Sub-Saharan Africa has contributed little to historic greenhouse gas emissions (GHG) in relation to the historic polluting regions of the global North, referred to in this context as 'Annex 1' countries [1]. However, a burgeoning body of research, including in this special issue, is pointing out that in the anthropocene the continent is on the frontline in bearing the brunt of rapid environmental change and as a result facing multiple socio-natural pressures across this urbanizing region [2–4]. Alongside the large-scale adaptation of urban areas to prepare populations and built environments to changing climates [5] the need to reduce GHG and develop low carbon infrastructure systems is becoming an increasingly important policy imperative [6]. This climate change-driven energy, resource and infrastructure nexus is generating urgency in how towns and cities connect to flows of investment focused on decarbonization. Reflecting on these low-carbon imperatives across urban Africa and experiences drawn from elsewhere, it is important to consider the financing that will supposedly support the plethora of city-based strategies, plans and transformations aimed at addressing these emerging policy objectives. This paper considers the potentials of carbon market-based financing through the Clean Development Mechanism (CDM) for such transformations and whether such investment is desirable, whilst recognising that it is a small part of the wider financing landscape.

Our collective knowledges and understandings of these potentials remain problematic whilst the carbon finance options currently available for sub-Saharan African towns and cities are arguably limited, full of contradictions and dominated by market-based logics. Under the current global climate change regime, financing of efficient, low-carbon infrastructures (such as non-methane-producing waste sites or household retrofits) is mainly being orientated around the promise and supposed allure of carbon markets and associated instruments. These include the European Emissions Trading Scheme (ETS), the Certified Emissions Reductions (CERs) and the CDM [7], which will be the main focus of this paper. Since the Kyoto Protocol in 1997, these markets have become integral to global responses to climate change [8]. Although a high proportion of these initial flows of carbon finance are being configured through pilot projects across large, non-urban projects [9,10], towns and cities are increasingly being framed as key sites for new flows of carbon investment [11].

This paper reviews current literature on carbon financing with particular reference to the CDM and how such flows of capital investment might intersect with and across urban Africa's infrastructure systems through the limited experiences on the continent and the more significant transformations elsewhere, both within cities and beyond. It goes on to interrogate the potential futures being generated through such financial circulations in the context of intense debates concerning the post-Kyoto and post-2015 development agendas. Exploring a series of critiques emanating from work on the CDM, together with increasing evidence from across the global South, the paper seeks to underscore the implications of carbon finance for urban infrastructure investment in sub-Saharan Africa. Firstly, it looks at the neoliberal nature of the response to climate change, secondly at the potential socio-environmental implications generated through such responses and finally at the inherent uncertainty of this form of financing. The paper argues for a transformation of these market-based landscapes of financing around notions of the paying of climate debt. This is a demand predicated on longer-term debates concerning ecological debt [12] and may provide a more equitable and fair way to finance the transformation of infrastructure across urban Africa. Such an approach to financing acknowledges the historically uneven geographies of carbon emissions and global environmental change [13].

Against the carbon markets

Numerous organizations, including international agencies, global institutions and financial consultancies, seek to better prepare urban sub-Saharan Africa to attract carbon finance in the form of the CDM [14–16] and frame such financing as key to wider green, urban economic boosterism [17]. However, a range of critiques are also being generated, questioning the logics of such responses and calling attention to the inherent problems of carbon financing. Although there is relatively little experience across urban Africa of the CDM [18–20], when combined with extensive evidence from elsewhere in the global South a series of problems are revealed. The paper now goes on to outline these critiques, arguing that in the face of such rapid global environmental change they articulate compellingly the need to shift beyond carbon financing as a strategy to secure low-carbon, infrastructure investment for sub-Saharan African towns and cities.

A neoliberal response to climate change

A key concern around the CDM and carbon finance more broadly is based on the logics of the framing of the atmosphere through the market and the supposed efficiencies generated through such forms of response to environmental crisis. Succinctly put, this privatization of the air or the earth's carbon cycling capacity, often described as a 'global commons' [21–23], has been based on wider political-economic processes including the neoliberalization of the environment, increasing financialization, the opening of new spaces for surplus capital, a financial crisis anchored in a much broader ecological crisis [24] and the ongoing governance configurations across key institutions and nation states [25]. Critics argue that carbon financing has thus instigated the enclosure of the atmosphere through the logics of market environmentalism and rational choice economics [26] as a way to extend markets (which is also termed 'accumulation by decarbonization') and protect the powerful interests of the fossil fuel-dependent industrial complex [27]. Such financialization has allocated the atmosphere to polluters rather than towns and cities or vulnerable communities and this, it is suggested, perpetuates and entrenches current global (neoliberal) economic relations or 'business as usual' in responding to the need for low carbon infrastructure systems.

As repeatedly evidenced over the past few decades, privatization, structural adjustment and neoliberal economic paradigms have caused immense problems in seeking to address socio-environmental needs in sub-Saharan African towns and cities [28,29] despite claims that market efficiencies can generate increased investment. For a number of commentators the CDM, based on similar logics to these wider and ongoing political-economic transformations, is likely to reinforce existing relationships of socio-environmental inequality and act as a form of neo-colonialism [30]. Furthermore, as various policies, norms and discourses emerge from organizations such as the World Bank seeking to 'get cities prepared to attract carbon finance' political, institutional, fiscal and technical landscapes are required to undergo necessary reshaping around neoliberal reform [31,32]. These changes include energy sector liberalization and policy reform, which are likely to create future difficulties for sub-Saharan African cities and towns in relation to the financial and institutional capacity to address a series of wider urban imperatives. Thus, this financialization of climate change mitigation is likely to reinforce and accelerate wider political-economic dynamics that have historically failed to address global socio-environmental problems both at the urban scale and beyond [33].

Socio-environmental implications

The CDM may have wider social and environmental implications beyond its primary mitigation purpose. In response to these circulations of carbon capital, emerging criticism suggests that the impacts on towns and cities are simply not properly accounted for in the evaluation and financing of CDM schemes [34]. By marginalizing these concerns, CDM projects face accusations of corruption, bad management and the generating of economic value at the cost of social and environmental damage [35,36]. Furthermore, this new form of financing infrastructure is implicated in the reconfiguring of urban politics around carbon control [37] that may reinforce or create new relationships of power and contestation across the city. A prominent example that embodies these new, carbon-financed forms of socio-environmental injustice is Durban's Landfill-Gas Bisasar Road initiative [23]. Facing closure through an ongoing campaign by local activists, the waste facility was reconfigured through CDM financing to expand operations. This infrastructure investment has sustained the heavy socio-environmental inequalities in the city through ignoring local health and safety concerns. Other examples in sub-Saharan urban Africa are few and far between yet reveal the problems of verification, the generation of carbon credits and sustaining operations and maintenance. These problems, together