The non-economy of anticipation in the construction phase of large dams

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Abstract

Large-scale infrastructure projects often include government promises and visions designed to win the approval and support of affected populations and to attract much-needed funding for implementation. The promise of infrastructure leads to changes in the visions and aspirations of affected communities, and fuels anticipatory and speculative investment to tie one's future to the perceived benefits of the project. In this article, we explore the process of translating promises into materiality. The construction phase of megaprojects has received comparatively limited scholarly attention, yet it is critical for understanding the socio-technical and socio-political relations of infrastructure. Using the construction phase of the Thwake Dam in Kenya as a case study, we show how the stagnation, uncertainty, and irregularities that characterize the implementation of large dams lead to a decline in initially dynamic anticipatory investment, resulting in what we call the "non-economy of anticipation." We argue that the misuse of infrastructural promises and the opacity of project implementation lead to infrastructural violence long before the actual realization and apart from the materiality of the dam.

Keywords: dams, political ecology, economy of anticipation, infrastructure, Kenya

Résumé

Les projets de développement de grandes infrastructures sont souvent accompagnés de promesses gouvernementales destinées à gagner l”approbation et le soutien des populations concernées et à attirer les fonds nécessaires à leur mise en œuvre. La promesse d'une infrastructure entraîne des changements dans les visions et les aspirations des communautés concernées, et alimente des investissement anticipatif et spéculatif de leur part, dans l'espoir de lier leur avenir aux avantages perçus du projet. Dans cet article, nous explorons le processus de matérialisation de ces promesses. La phase de construction des mégaprojets a été relativement peu étudiée par les chercheurs, alors qu'elle joue un rôle crucial pour la compréhension des relations sociotechniques et sociopolitiques des grandes infrastructures. À travers l'étude de cas de la phase de construction du barrage de Thwake au Kenya, nous montrons comment la stagnation, l'incertitude et les irrégularités qui caractérisent la mise en œuvre des grands barrages conduisent à un déclin de ces investissements d'anticipation initialement

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dynamique, résultant en ce que nous appelons la “non-économie de l”anticipation”. Nous soutenons que l'abus de promesses liées à ces infrastructures, et l'opacité de la mise en œuvre du projet conduisent à des violences infrastructurelles bien avant la réalisation effective et en dehors de la matérialité du barrage.
Mots-clés: Barrages, écologie politique, économie d'anticipation, infrastructure, Kenya

Muhtasari

Miradi ya miundombinu mikubwa mara nyingi ina sifa za ahadi na maono ya serikali yaliyojengwa ili kupata kibali na kuungwa mkono na jamii zilizo athirika, ili kuvutia ufadhili unaohitajika kwa ajili ya utekelezaji. Ahadi za miundombinu hiyo hupelekea mabadiliko ya maono na matarajio ya jamii zilizoathirika, na kupelekea uwekezaji wa kutarajia na kubahatisha katika jitihada za kufunganisha matarajio ya mtu ya baadae na kutambuliwa faida ya mradi huo. Katika makala haya tunachunguza mchakato wa kuzibadilisha ahadi kuwa katika uelekeo wenye maana. Awamu ya ujenzi ya miradi mikubwa imepokea kwa ulinganishi umakini wa kielimu, hata hivyo ni muhimu kuelewa majibu ya kiufundi-jamii na kisiasa-jamii yahusuyo miundombinu. Kwa kutumia hatua za awali za ujenzi wa Bwawa la Twake likilopo nchini Kenya kama uchunguzi kifani, tunaonesha namna ambavyo mkwamo, kutokuwa na uhakika na makosa vinavyoutanabaisha utekelezaji wa utengenezaji wa Mabwawa makubwa unavyopelekea kupungua kwa matarajio ya uwekezaji wa awali, na kupelekea kile tunachokiita "yasiyo ya uchumi tarajia" tunatoa hoja ya kwamba, matumizi mabaya ya ahadi za miundombinu na uwazi katika utekelezaji wa miradi yanapelekea vurugu za miundombinu kabla ya utambuzi halisi kando na kufanikiwa kwa Mabwawa hayo.
Maneno muhimu: Mabwawa, Siasa za Ikolojia, Uchumi tarajiwa, Miundombinu, Kenya

1. Introduction

The financing landscape for infrastructure projects has undergone significant transformations, driven by a push to address climate change adaptation, water scarcity, food insecurity, and increasing energy demand through large-scale infrastructure solutions. Governments in the Global South are seizing on this momentum, framing multi-purpose dams as optimal solutions to address resource challenges while also promising economic development (Ahlers, 2020). As a result, the Global South is experiencing something of a renaissance in the construction of mega-dam projects (Atkins & Hope, 2021), with hydropower projects projected to increase significantly in the coming years (Zarfl *et al.*, 2015). The entry of Chinese multinationals (Siciliano *et al.*, 2019) and private sector investors (Ahlers *et al.*, 2015) is emblematic of the increasing globalization of infrastructure finance. Various actors, including the World Bank Group, have highlighted the importance of addressing a "global deficit in infrastructure" (Rodríguez *et al.*, 2021). Therefore, as funding becomes available, infrastructure visions and promises are being adapted to global agendas, even though the plans for the project may be decades old and predate current global funding trends.

In this article, we want to focus on the construction phase of large-scale infrastructure projects, often referred to as megaprojects, to examine the translation of initially formulated promises and the socio-political dynamics and conflicts they cause. Megaprojects, such as large multi-purpose dams, are characterized by their ambitious scale & significant investment and are driven by "politics of aspiration" (Müller-Mahn, Mkutu, & Kioko, 2021). The politics of aspiration refers to the framing of infrastructure projects as promises of desirable futures, inspiring optimism about the future and aligning stakeholders to justify investments. However, this framing often obscures the practical challenges, risks, and inequalities involved (Müller-Mahn, Mkutu, & Kioko, 2021). We use the construction of large dams to show how, over time, projects of this magnitude raise expectations far beyond their actual scope, while at the same time, put increasing pressure on the promises originally made. While existing literature has extensively discussed the planning and operation phases of infrastructure projects, the socio-political dynamics of the construction phase have received relatively little scholarly attention as a distinct phase for analysis. This article seeks to address this gap by investigating how anticipatory actions, investments, and expectations around large-scale infrastructure projects shift as these projects move into the construction phase, and how these shifts shape the lived realities of affected residents during this period.

We investigate the construction phase of the Thwake Dam, a multi-purpose climate finance project in Kenya, to explore how socio-political and economic factors turn the economy of anticipation associated with the project into what we call the "non-economy of anticipation." Thwake Dam is part of the global renaissance in dam developments offering an opportunity to assess what has changed, or remained the same, compared to the initial wave of dam projects, which faced intense criticism. The criticism around dam developments in the 20th century led to the formation of the World Commission on Dams (WCD) in 1997. The Commission published a comprehensive report, aiming to set out best-practices (World Commission on Dams, 2000). The WCD gained large attraction from governments and development institutions globally (Schulz & Adams, 2019), however, only few adopted it as a binding strategy in dam developments (Moore, Dore, & Gyawali, 2010). Twenty years later, it became apparent that the boom for dams in the Global South is not following the recommendations set by the WCD and the very same conflicts - such as the clash between economic benefits highlighted by engineers and politicians, and displacement and environmental degradation highlighted by activists and scientists, have resurfaced (Schulz & Adams, 2019). In addition, while today's aspirations may focus on creating "climate-proofed waterscapes," profit-driven operational practices perpetuate harmful infrastructural impacts in addition to the physical structure of dams, which inherently negatively affect residents in their vicinity (Käkönen & Nygren, 2023).

Scholars within the field of political ecology have studied the socio-political impacts of water infrastructure, such as dams for decades,[2] particularly in terms of displacement, resettlement, and resistance (Del Bene, Scheidel, & Temper, 2018; Scudder, 2012), disproportionate burdens on marginalized groups (Munzer, 2019), and development promises (McCully, 2001). Interestingly, political ecology research on development promises shows that dam projects are often characterized by strategic overpromises and depoliticization at the same time. For example, Atkins and Hope (2021) as well as Huber and Joshi (2015) discuss how through a "green" repackaging of the developmental promise of dams, the projects are deemed apolitical, presenting them as the only possible future while ignoring their immense ecological and social impacts. Dye (2022) finds that in Rwanda and Tanzania, dam projects are strategically deployed within a high modernist framework that depoliticizes their negative impacts by emphasizing economic progress and technical benefits. Puerta Silva and Carmona Castillo (2020) show how Environmental Impact Assessments (EIAs) in dam projects function as governmental tools that use technical framing to legitimize infrastructure development, depoliticize negative social and environmental impacts, and obscure exclusionary practices. Braun (2020, p. 855) highlights the strategic use of proclaimed future benefits of dams as a way to contain local discontent and dissent while maintaining hopes of a better future through a "logic of improvement." With this focus on promises as well as the temporality of dam developments (Braun, 2020; Bromber, Féaux De La Croix, & Lange, 2014), we aim to contribute to the political ecology of dams and to the debate on economies of anticipation in infrastructure studies. We argue that the intentional misuse of infrastructural promises and the false imaginaries created by developers and governments create non-economies of anticipation, which we believe constitute a form of infrastructural violence (Rodgers & O'Neill, 2012), regardless of the material outcomes of the project and in part regardless of the materiality of the dam itself. Infrastructural violence already unfolds during construction long before the project is completed. By this, we highlight an underexplored phase in the life cycle of mega-dams. We examine how the stalled construction of the Thwake Dam is fueling a unique "landscape of anticipation" characterized by crumbling promises. Our analysis shows that the socio-political and economic hardships for affected residents are not only caused by pre-construction displacement or the impacts of completed infrastructure but are also deeply embedded in the often-indefinite construction phase. This study highlights the need and opportunity to continually revisit (mega-) infrastructure projects through a political ecology lens, analyzing their impacts in all stages of their development and decay.

In the following, we will focus our analysis on three distinct development phases of the Thwake, which are not uncommon for similar mega-projects (Ansar *et al.*, 2014): imagining, building, and stalling. We find that imaginations about the materiality of the dam create expectations and anticipations, bringing together actors

[2] See Meehan *et al.*, (2023), Chapter 6 for an introduction to the political ecology of dams and Middleton (2022) for a review of the broader literature.

and strategic groups across scales. However, during the construction phase, these highly charged expectations and anticipatory investments fade quickly, and the everyday practices once driven by eager anticipation turn into apathy.

2. Phases of infrastructure development

There is an interesting tension in the growing literature on the temporality of infrastructural promises (see for example, Anand, Gupta, & Appel, 2018; Kovač & Ramella, 2023). On the one hand, authors argue for a processual perspective that takes into consideration "the different phases of infrastructure's life span—design, financing, construction, completion, maintenance, repair, breakdown, obsolescence, ruin, and how these imply different temporalities in turn" (Appel, Anand, & Gupta, 2018). On the other hand, the same authors diagnose this processual view of infrastructure with a "protean" nature, referring to the shape-shifting god of the Greek pantheon, Proteus, who knows past, present, and future but famously refuses to give straight answers unless seized and held down. This leaves us with an epistemological conundrum: how are we to find out about the significance of different phases in infrastructure development, if these phases are ever shifting and hardly ever distinguishable?

Existing approaches deal with this riddle in different ways. In the same volume as Appel *et al.* Gupta (2018) makes an epistemological case for a perspective in which projects do not simply begin with planning and end with completion, and that "a dynamic view of infrastructure enables us to replace the social death of a project marked by its completion with a focus on movement and process, on the constant struggle between renewal and ruination" (p. 73). Similarly, Carse and Kneas (2019, p. 11) describe the "dialectical relations" from which infrastructural temporalities emerge, leaving the "time-knots" of infrastructural temporalities entangled. More recently, Dawney (2021) draws attention to "the multiple temporalities of infrastructure, and their shifting ontologies."

This empirically grounded article on the Thwake Dam in Kenya builds on these approaches but argues that, under certain analytical circumstances, it is essential to maintain distinctions between different phases of infrastructure project development. This approach helps untangle the "time-knots," pin down the "protean" nature of such projects, and preserve ontological distinctions despite the constantly shifting foundations on which they rest. This insistence on analyzing distinct phases of infrastructure development has several reasons. Most importantly, we will show that affected individuals themselves refer to a clear break between the prolonged planning phase and the eventual start of construction. Secondly, this relates to the fact that the planners themselves structure the project along distinct phases, which are communicated to and experienced by affected residents. The common use of the terms "planning," "construction," and "completion" in political communication and discourse on infrastructure cannot be excluded from critical analysis. Thirdly, precisely because of the multiple, entangled temporalities of infrastructure development, we see the need for analytical clarity from an epistemological point, even at the cost of potential simplification.

Imagining: The planning phase and economies of anticipation

The planning stage of infrastructure development is relatively well-researched, and several studies have focused in particular on the sociotechnical imaginaries (Jasanoff & Kim, 2015) that are negotiated and contested before the beginning of construction. At this stage, actors and strategic alliances of actor groups try to influence the design of the project in their interests or argue against its implementation. The contestation can be understood as a component of the political arenas of infrastructure development (Rieber & Müller-Mahn, 2024), in which 'challenger' actors take on the implementing stakeholders to secure project inclusion for otherwise marginalized groups. At this stage, the object of contention is fictional. All actions within the political arena are based on the anticipation of what will or might happen during and after the materialization of the project. This anticipation can be very different between actors and stakeholders, exposing epistemological differences in approaching the object of contention and leading to incoherence in the language of negotiation. In some cases, this results in the marginalization of the interests of less powerful groups, communities or individuals. To overcome alternative anticipations and secure both public and financial support for the implementation of

the project, developers mobilize visions of growth, prosperity, and improvement (Müller-Mahn, Mkutu, & Kioko, 2021). Alternatively, threat scenarios are mobilized to warn of possible consequences of the non-implementation of the project. Bromber *et al.* (2014, p. 290) describe this as the politics of temporality, in which transformations are promised, with dams as the driver of change and the solution to multiple problems, such as "control of sweet water, energy provisions, regional influence and modernization of state and citizens" (Bromber *et al.*, 2014).

These promises and visions of the future alter the present and trigger effects well before the project is underway. To "anticipate is not simply to expect; it is to realize that something is about to happen and, importantly, to act on that premonition" (Weszkalnys, 2014, p. 212). Acting on anticipation triggers anticipatory investments, anticipatory practices (Enslev, Mirsal, & Winthereik, 2018), and fictional expectations (Beckert, 2016), ultimately culminating in economies of anticipation (Braun, 2020; Cross, 2015; Greiner, 2016). Economies of anticipation revolve around "dream zones" (Cross, 2015, p. 425), where new regions, driven by the construction of infrastructure, become attractive for the financial flow of capital. What emerges through research is a perspective on "diverse ways in which people orient themselves toward the future" (Cross, 2015, p. 426), acknowledging that these processes are not only driven "by a singular logic of accumulation or rule" (Cross, 2015, p. 427), but in complex social processes by the affected people themselves. In practice, these are subtle changes in people's aspirations and actions, but also drivers in land markets and investments.

Building: Infrastructure under construction

The transition from planning to construction marks a significant shift in the "landscapes of anticipation" (Aalders, 2020) around infrastructure projects. First, the political arena of infrastructure planning vanishes and makes room for a new arena of infrastructure under construction. As it commences, a project's alignment towards the future takes a paradoxical form. On the one hand, it enters a stage where decisions become more difficult to reverse, and therefore facts are created on the ground, leaving less room to challenge the very existence of the project and its wider design (Hudon & Floricel, 2023). On the other hand, the construction itself creates concrete targets for striking workers or acts of sabotage where before there was only form, and placeless visions (Zhu & Aalders, 2023). As projects of such magnitude attract expectations for inclusion during construction as well as inclusion in the benefits of the project, new actors emerge on the scene. Negotiations in the political arena of construction focus on who is to benefit from the construction work and, at a later stage, who will benefit from the project's ultimate purpose, and how? In the case of hydroelectric or irrigation schemes as well as multi-purpose dams, these claims to inclusion extend far beyond the actual construction site and unfold at various scales (Hommes, Boelens, & Maat, 2016; Lord, Drew, & Gergan, 2020).

Secondly, before the construction leads to a new future of whatever outcome, it undoes futures that were held in the spaces that the project will now occupy. While multiple, even contradictory futures can coexist during the planning of an infrastructure project—think of concerns for social and environmental justice clashing with the requirement of fast implementation and cost-recovery (Wasimi, 2010)—the spectrum of possible future pathways is eventually narrowed down to just one during construction. When dams are built in populated regions, they require the relocation of whole regions. Through this process, any future lives that individuals have developed is nullified, forcing them to start from scratch. Those who are just outside the technically defined boundary of who is to be compensated and displaced, now find themselves in a future conditioned by a dam. Instead of sharing their neighborhood with other community members along a river, they will soon be bordering a large reservoir lake and sometimes a habitat for wildlife. Once living within a community, they are now the periphery. In addition to the trauma of resettlement and the breaking of community ties, communities near the construction site are exposed to the effects of dam construction for years to come. These commonly include trucks passing through residential areas, explosions, dust, and the effects of a temporary influx of workers. They are the trade-offs that people living near dams are expected to endure throughout the construction phase for a greater, dispersed, and often weakly-defined good. In the absence of benefit-sharing mechanisms, the future marginalization of those most affected (Fan *et al.*, 2022) manifests itself during the construction phase, or, as in the case of forced displacement, in its immediate preparation.

Stalling: Building the non-economy of anticipation

Large projects are often subject to delays, cost overruns, and persistent financing problems that are almost inherent in infrastructure development. Over-optimistic project timelines and cost underestimates are often deliberate, due to tendering procedures that favor the lowest bid (Flyvbjerg, 2007; Flyvbjerg *et al.*, 2002), which leads to significant deficiencies later in implementation. This section explores these issues in detail, highlighting how they contribute to the development of a "non-economy of anticipation" and "infrastructural violence." It is worth noting that the contemporary wave of dam developments involves new actors not captured by earlier megaproject research. Käkönen (2023) highlights that in Cambodian dam projects, the host government and developers adopt "no strings attached" approaches with regulatory exemptions and limited oversight, leading to faster timelines and fewer delays—typical of Chinese overseas infrastructure investments. Thus, our conceptualization is more relevant to cases with stricter funder regulations, such as those by regional development banks and the World Bank.

Within these stricter models for tendering and project planning, one can assume that the project with the most unrealistic goals and the most optimistic cost and time estimations is chosen for implementation (Flyvbjerg, 2007). This strategic overestimation can lead to additional financial demands and timeline extensions as projects progress. When rising costs exceed the capacity of financiers like private investors, development banks, or governments, delays or even project stalling can result. These processes are visible to the public and any delay in the completion of a new (mega) project attracts media attention. It is impossible for developers and financiers to hide cost overruns and delays, and yet the original promises made (and possibly required to get the project off the ground in the first place) are usually not adjusted or revised, but maintained until proven otherwise.

This is what Braun (2020, p. 855) calls the "logic of improvement," which is about renewing hope in the promised prosperity of the project and dismissing complaints until the final benefits are realized. However, for the people who once bought into or consented to a project on the basis of the promises initially made, this phase marks a time of increasing recognition and understanding that not all promises may be kept, especially not within the expected time frame. As the project progresses, affected residents may enter a phase of disillusionment and uncertainty, and are faced with the hardship of being in the vicinity of a megaproject for longer than originally planned. With increasingly fluid timelines and delayed goals, it becomes difficult to rationalize actions towards anticipated future benefits of the project.

This disillusionment leads to what we call a "non-economy of anticipation." The realization that initial promises will not be fulfilled leads to a reduction in actions towards the promised future, as the credibility of these promises weakens. While a savvy investor may buy land to build accommodations for the anticipated influx of construction workers, she may cut her losses and sell the land and abandon her investment as she realizes that these workers may never arrive. A non-economy of anticipation is characterized by the stagnation of entire regions for an indefinite period. This phase has a profoundly negative impact on people's livelihoods and contributes to a growing sense of exclusion and a loss of confidence in the initial prosperous future. We propose this term as an addition to the existing academic discourse introduced above on the "economy of anticipation" (Braun, 2020; Chome *et al.*, 2020; Cross, 2015; Greiner, 2016) and "fictional expectations" (Beckert, 2016). In economies of anticipation, people align present economic activities with the future defined by an anticipated infrastructure project: "To speak of an economy of anticipation is to focus our attention on the diverse ways in which people orient themselves toward the future and the ways that expected or promised futures conflict or converge" (Cross, 2015, p. 426). Braun (2020, p. 855) argues that the above-mentioned "logic of improvement" is what constitutes an economy of anticipation, and in the case of large dam projects, is what keeps it alive. Our proposal to reverse the term into a non-economy of anticipation is an attempt to allow for a pessimistic understanding of this phase of megaproject implementation, especially when the "logic of improvement" is not (any longer) able to convince all the people it targets. At the risk of writing a fatalistic argument, it describes the socio-political status quo when the bubble of the political promise bursts.

The non-economy of anticipation is one where infrastructural violence unfolds before the project is operational. The skepticism about the infrastructure promise reveals, "how […] relationships of power and

hierarchy translate into palpable forms of physical and emotional harm" (Rodgers & O'Neill, 2012, p. 402). By including a perspective from the sociology of expectation, we can see that infrastructural violence is deeply embedded in the processes through which large-scale infrastructure is developed, promoted, and constructed. Borup *et al.* (2006, p. 290) argue that "Expectations usually have a temporal patterning over time. This is often manifested in alternating cycles of hype and disappointment. This phenomenon of early promise/later disappointment suggests that while expectations are essential to mobilizing effective interest, an early surge in hype is necessary in order to get a hearing. […] Thus disappointment seems to be almost built into the way expectations operate in science and technology."

This observation is in line with Flyvbjerg's (2014) work on megaprojects and infrastructure projects which, by design, overestimate benefits. However, these actions and expectations by developers result in emotional and material consequences for those affected by the project. When working in areas with high poverty rates and making promises that impact livelihoods, developers can secure consent by fostering commitment to the idea of a better future. However, this often leads people to overcommit and invest their limited resources in a future that may never come—despite those in power being fully aware of the small chance of that future coming to pass anytime soon.

When the project begins to delay or stall, withholding planning details and timeline changes from those most affected leaves them unable to anticipate future developments due to the opacity of those in power. As we elaborate in detail in the presentation of our empirical data in section four, people in the non-economy of anticipation become aware of this widening gap between what was promised to them and what actually seems to be happening. Lesutis (2022a) calls those affected the "Anticipation Populations" describing them as groups given uncertain hopes of inclusion in state-led development, yet often left in a precarious position as promised benefits fail to materialize and inequalities deepen. The gap between promise and what is unfolding during (stalled) construction, creates a dizzying diplopia, a figurative and literal "double vision," where the overlap of promised and probable futures makes it impossible to orient toward any one future. Rather than seeing no future worth investing in, people grow increasingly skeptical of the unrealistic futures promised by developers, leaving them reluctant to invest in any potential future, including their own.

3. Research area and methods

The Thwake Multipurpose Dam is a dam project on the border of Makueni and Kitui counties in the semi-arid region of Kenya, south of Nairobi. The dam is located just below the confluence of the perennial Athi River and the seasonal Thwake River. The roots of the project date back to the 1950s (African Development Bank, n.d.), and was originally planned under the colonial administration. However, it never materialized and preparatory work only began decades later in 2016. The dam is being built to supply water to the Konza Technopolis, a planned ICT hub south of Nairobi that is set to become the future "Silicon Savannah." In addition, there are a number of objectives related to climate adaptation and water management for the water-scarce regions of Makueni and Kitui, as well as a small component for hydropower generation. The generated electricity is required for the distribution of water to higher areas. The "food deficit" counties of Makueni and Kitui are to receive water for the irrigation of 40,000 hectares of land (African Development Fund, 2013). The project is funded in parts by the Kenyan government and through the African Development Bank (AfDB). Most of the funds provided by the AfDB are sourced from the World Bank (African Development Fund, 2013). The construction of Thwake Dam is structured in four phases, one is water storage, two is implementing hydropower production (20MW), three is water supply to Konza and other urban centers, and four is the irrigation scheme.[3]

The research team for this study consisted of the authors of this article, as well as a Wote-based consultant familiar with the dam development, who assisted in liaising with public and private officials and in translating interviews conducted in Kamba when Author 2 was absent. The research was further supported by a local community elder, who is well-known in the area and played a crucial role in connecting the researchers

[3] The 2013 project appraisal report considers hydropower as phase three and water supply as phase two (African Development Fund, 2013). As several respondents understand water supply as phase three, we assume that this order has changed since the publication of the report.

with residents in the vicinity of the dam site. The fieldwork consisted of two phases. In mid-2023, author 2 & 3 spent one week around the Konza Technopolis and the Thwake Dam construction site for an initial visit and to informally engage with stakeholders and residents. In early 2024, author 1 & 2 continued with an in-depth analysis of the current socio-political dynamics, focusing solely on the Thwake Dam. This decision was made because the success of Thwake Dam is a precondition for the future and success of Konza Technopolis.

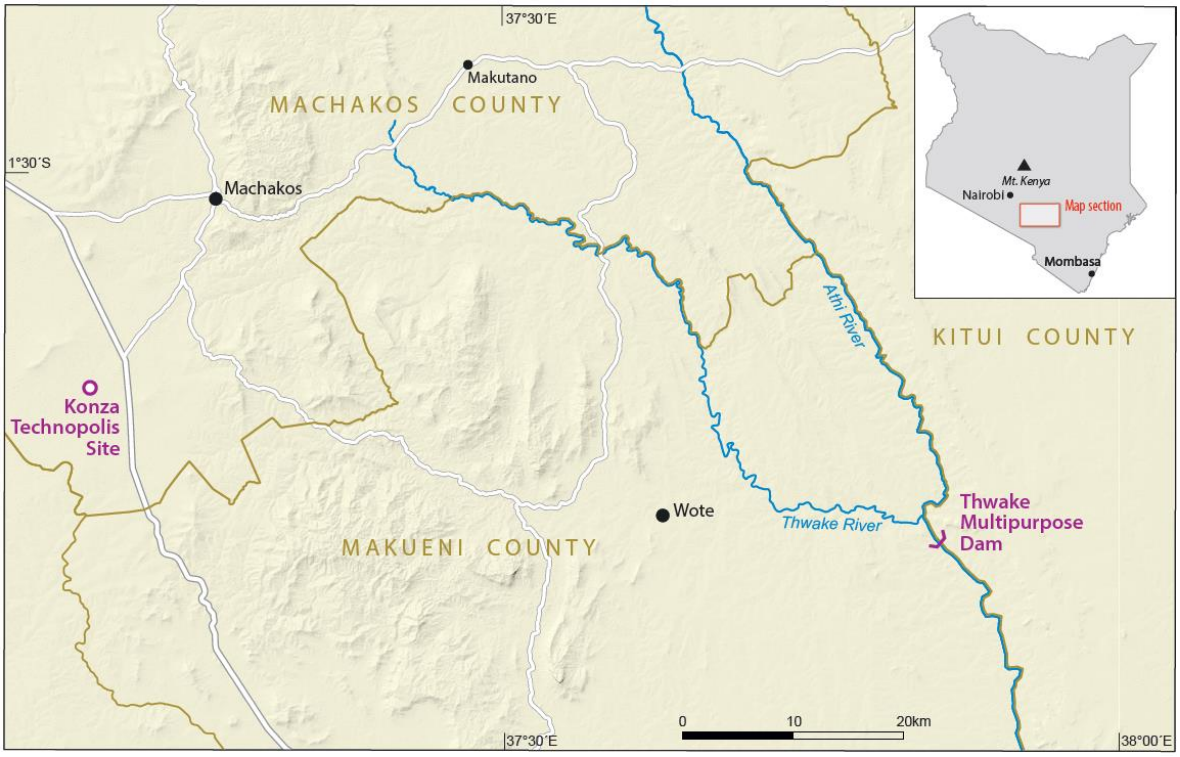

Figure 1: Location of the Thwake Mulipurpose Dam. Source: Field data, 2024

Over a field stay of three weeks in 2024, the authors conducted 18 semi-structured interviews with individuals who live in the immediate vicinity of the construction site, but who were not or only partially compensated during the resettlement phase. The goal was to assess the transition from the planning to the construction phase with these informants. For reasons of accessibility and to focus on communities in which many are to border the dam and the dam reservoir, locations on the side of Makueni County were targeted. The interviews revolved around the history of the dam, changes in livelihoods, community bonds, and changes in aspirations, as well as anticipations influenced by the ongoing construction and political communications. In addition, four county and local level politicians were interviewed to gain an understanding of the political dynamics. The research concluded with interviews with consultants directly involved in the construction works and with a visit to the construction site. For the sake of anonymity, their roles cannot be disclosed in detail.

The next section presents our findings from the Thwake Dam site, providing a detailed account of how the promises made at the planning stage are—or are not—translating into material outcomes in Kenyan infrastructure politics.

4. Thwake Dam under construction: Translating promises in infrastructure politics

The Thwake Multipurpose Dam project re-emerged modestly as part of Kenya's Vision 2030, the country's development blueprint launched in 2008. According to the AfDB appraisal report and the Environmental Impact Assessment, the project's general objectives are to "open up the region" (African Development Bank, n.d.) and to improve water supply and irrigation systems, benefiting approximately 1.3 million people and creating over 7,000 jobs (African Development Fund, 2013). After years of litigation over the tendering process, the project was finally "under construction" by late 2017. As the project progressed, so did the communication surrounding it; the first issue of the *Thwake Dam Journal*, published by the Ministry of Water, Sanitation, and Irrigation, was titled "At the cusp of economic revolution: How Thwake Multipurpose Dam is set to change fortunes." Here, the dam was being hailed as an economic catalyst for the entire Lower Eastern region of the country and as a contributor to food security. While we acknowledge the limited significance of such political communication materials, they nonetheless demonstrate the confidence with which developers have promoted the megaproject, and echo the language used to promote the project to the residents in the affected region.

Imagining: The promise of Thwake Dam in public participation and resettlement

Preparations for the Thwake Dam began some 60 to 70 years before the first stone was laid. Plans for the project can be traced back to the colonial administration. The site of today's Thwake Dam was identified as a suitable location for large-scale water storage. Traces of the planning for the megaproject were very present in the area, as a water level gauge was built around the site of the dam and beacons were placed in the area. As engineers and planners moved in and out of the area over the years, the idea of a dam at the confluence of the Thwake and Athi Rivers was a very present but distant reality for the people of the area, but none for which anyone was actively preparing. With its long history, the vision of a dam in the region had become part of the collective memory. People who are now adults would grow up hearing about the Thwake Dam.

Talks about the Thwake Dam gained public and media attention after the initial tender and environmental impact assessment around 2013. However, legal issues surrounding the bidding process delayed the actual start of construction for several years. During this time, respondents recall a period marked by uncertainty, yet also one characterized by proactive measures, as people began to prepare for expected changes. Within this process, few people were able to take advantage of the situation. With the necessary financial resources and access to information about the project, some were able to purchase land and develop it with the intention of making a profit once land acquisition by the state began. Apart from land, business opportunities arose and were explored in areas also far from the actual construction site. With the expected influx of thousands of workers, some speculators invested in hotels, rentals, churches, restaurants, and shops in anticipation of the construction of the Thwake Dam.

However, when in 2016 the first sensitization workshops were held to raise awareness about the project in the community, the majority were still relatively in the dark and could not believe that this time the dam would actually be built. Repeating the promise of a project too often tends to weaken it, to the point where the dam turns from promise to punchline:

> I had always thought of it as a joke, but I started seeing the seriousness of the matter when people started selling their land.
>
> Interview in Kathukuni, January 2024, translated from Kamba

The meetings held by the National Land Commission and the Ministry of Water in 2016 revolved around two key issues; the first was to obtain community consent for the construction of the project, as public participation is enshrined in the Kenyan Constitution. Secondly, the aim was to raise awareness about compensation for the approximately 1,000 affected landowners and to negotiate a fair rate for the land, as well as for any structures and development on it. Overall, the compensation process was indeed perceived as

relatively fair. After the initial rejection of the project and the proposed amount of compensation, the results after renegotiation were viewed positively by many, with no reported cases of compulsory land acquisition. However, the issue of public participation—and thus the basis for what followed—appears to have been flawed or outright abused. Residents noted that the meeting's timing excluded many working community members, leaving mainly elder representatives to attend participation meetings. Consent was informal, based on a simple show of hands and allegedly, developers[4] filled the meetings with "outsiders" who were compensated to sway support, outnumbering local voices and concerns. This allowed the developers to tick off "community consent" despite lingering disagreements. People who were rather optimistic about the project from the start, rather than those who had to resettle, were most convinced that the dam would be a solution to the water shortage in the area. As with many semi-arid lands in Kenya, intensification of agricultural practices and the production of high-value crops require sources of irrigation. Water is further a crucial aspect for livestock production. The developers made use of this aspect, not only to position the dam as a solution to the climate risks of the Lower Eastern region and to attract funding from the AfDB, but also to promote the project locally. Phase four of the project is to establish "irrigation works for up to 40,075 hectares of land in Kitui and Makueni counties" (African Development Fund, 2013, p. 3). This prospect, even though no information about the location of the irrigation scheme has been made public, has raised hopes and changed the imaginations and aspirations of the people in the area, as well as those of outside investors.

An additional factor in anticipatory actions arose from the financial compensation that was paid out to the displaced. When it became apparent that compensation would include not only the land itself but also the improvements made on it, some individuals acted quickly to increase their potential compensation. Many of these actions could have ended up being misguided if the project had not been implemented. The promise of infrastructure and the large-scale acquisition of land by the State before the actual construction of the project set in motion economies of anticipation.

> […] actually what happened, when it became apparent that this project will take off and some people knew early enough that there is going to be compensation, we had cases whereby some locals planted extra plants with an eye of compensation, because besides the land, they [the developers] were paying for […] mango trees and so forth, so, because there are people who knew about the compensation almost a year to, so they went ahead and planted more trees, you know? You find that someone has had 10 trees and now all of a sudden they plant like a hundred trees, so they were strategic they knew by the time compensation come I will have 110 trees.
>
> Interview Local Government Official, Wote, January 2024

Building: The socio-political dynamics of Thwake Dam under construction

The Thwake Multipurpose Project is described by most residents of the area as a project that began in an unexpectedly positive way. Public participation was largely neglected, but what followed during the compensation and resettlement process did not live up to the public's fears as described in the previous section. In the vast majority of cases, compensation was paid on time, allowing displaced families to purchase land elsewhere and to construct new homes. One of the key political promises, and one that was strongly advocated for by county politicians, was to use locally available resources for the construction of the dam, but more importantly, to hire mostly local people to increase employment opportunities for the affected communities. While there were concerns about workers migrating from areas far away from Kitui and Makueni counties, the economic impact of increased employment was felt and seen as beneficial to the entire region and the impact on local centers was quite significant. However, all these positive effects came to a halt when the COVID pandemic also brought the fast-advancing Thwake Dam to a standstill. Work stopped for several months in

[4] We use the term developer to refer to the stakeholders involved in the implementation of the project. These are mainly the client, the Kenyan Ministry of Water, Sanitation and Irrigation, the construction company China Gezhouba Group and the AfDB as the financier.

2020, and when it resumed, things never went back to normal from the respondents' point of view. The working hours of unskilled laborers were increased, and their daily wages were reduced to approximately US$3.50 per day, all while the cost of living in Kenya rose dramatically. Additionally, the number of workers hired per day was reduced. At times, due to budget problems of the Kenyan government and subsequent delays in the disbursement of funds, the construction company ran out of money and delayed the payment of wages (Maundu, 2023).

Since then, years into the construction phase, the initial promises have begun to crumble. Today, hopes that all the benefits will be realized are low. The promise of improved access to water serves as a clear example of how a promise can ignite hope and change people's aspirations. During the planning phase, water as an abundant resource was a central theme in the narrative, with developers and government officials assuring communities that the dam would provide reliable water for irrigation, household use, and livestock. This promise resonated deeply in a region prone to droughts, raising hopes for improved livelihoods and ultimately driving community support for the project. However, while the project is under construction, accessing water has become drastically more difficult for an indefinite time. The construction company has erected a fence around the construction site that extends several hundred meters from the dam wall. As a result, local people have to walk long(er) distances to access the Athi River. With the increased presence of crocodiles and hippos in the river, the construction of the dam has heightened risks for people and livestock near it. The developers' corporate social responsibility measures to provide boreholes for safer and easier water access have been slow and remain inadequate to date.

The construction phase, which naturally precedes any potential benefits and progress, inflicts immense hardship on the people in the area. This is most evident in the constant blasting and explosions from the quarry (see also Owuor *et al.*, 2023), which have been so detrimental to the people of the area that a committee of senators has been convened to investigate the matter (Senate Standing Committee on Lands, Environment and Natural Resources, 2021) and to suggest improvements. However, as of early 2024, residents had not seen any significant changes. According to the respondents, the blasting has caused cracks in their houses[5] and has negatively impacted the health of people and livestock. The unpredictable timing of the explosions causes regular, stressful disruption in the area. Additionally, dust from the quarry contributes to respiratory problems, and heavy vehicles have damaged all access roads to the construction site. In the build-up to the project, developers and political representatives did at no point prepare the residents for these and other circumstances:

> […] I have always been of the view that during the time of this project implementation, the local community has gotten more losses than gains, the only profit that we can get is probably after the completion of the project, but during the implementation it was expected that we will get some gains but we were so wrong, we got so many losses.
>
> Interview, Local Government Official, Wote, January 2024

In addition to the actual losses and hardships, the uncertainty about the future of Thwake Dam adds to an already confusing situation for the inhabitants. As mentioned above, the multi-purpose dam is being constructed in four phases. Phase 1 is underway and consists mainly of water storage through the construction of the dam wall. At the time of writing, phase two (the hydropower component) is dependent on finding new development partners[6] while phases three and four are still many years away, even in optimistic planning. Phase four, the irrigation scheme, has generated the most hope and predictions of improved agricultural systems. However, not only is phase four in the indefinite future, but people living in the area do not even know where the water will flow and from where it will be accessible, making it impossible to act towards that future.[7]

[5] While the authors cannot verify the causation, almost all the houses in the area had visible cracks and damage.

[6] https://www.youtube.com/watch?v=GaYBdaGKXtI [last accessed 07 May 2024], Interview with CS Zachariah Njeru.

[7] According to respondents involved in the construction process, the irrigation scheme is to start a few kilometres downstream of the dam, outside the communities where data for this study was collected.

Concerns are mounting over who will benefit from the irrigation scheme, as there are rumors that the state plans to purchase approximately 100,000 hectares for the irrigation phase of the project. Before the project, these details didn't matter much to the local people—it was a vague future anyway—but now that the people of the area are directly affected, they expect to be informed about the outlines of the project's components. As the Konza technopolis was the impetus for the dam project, there is a serious risk that once the phase of supplying water to the new urban techno-center has been reached, the main objective will have been achieved. Birkenholtz calls the diversion of water from agrarian contexts to new centers of capital a state-led process of "dispossessing irrigators" (2016), with immense consequences for the livelihoods of farmers.

5. Stalling: Non-economy of anticipation around Thwake Dam

> You know us, we were the ones told before the commencement of the project that we would be the first to benefit the most from the dam. As you see me here, [I] am a businessperson but since this dam was started, our business went nyweeee [went down or were dwindling] […]. At times we come to find that, you know, the employees from the dam, how their work comes to a stop when the project stalls, we also put a stop to our business. You know we give credit [to the customers] and wait for payment at the end of the month. You find that how we thought we would improve is not the case. We feel like we lost hope in this dam. We feel like we were taken advantage of. We feel like we have suffered from it, people did not end up benefiting from it.
>
> Interview in Nguumo, January 2024, translated from Kamba

When work resumed after the first wave of the global pandemic, nothing seemed the same. While this was certainly a gradual process, for the respondents and workers in the research area, the construction of Thwake Dam could be divided into pre-pandemic and post-pandemic. In the post-pandemic era, the politics of infrastructure development and its usual delays and funding problems took over the Thwake Dam project, and like so many others before it, things didn't go according to plan. The project ran into its first funding problems, the first delays in implementation began to appear, employment began to decrease, the local economy suffered, and soon the project came to a standstill for several weeks. Since then, construction has never resumed at full capacity, and in 2024 the contractor asked for another extension to complete the first phase, which was granted until the end of the year but ultimately not met. As of early 2025, work has stalled again, a political blame game has emerged, all the while the situation around the construction site is becoming increasingly blurry.

This situation creates two overlapping visions of the future for the people living around the Thwake Dam. With one eye, people can still see the vision produced for example by the *Thwake Dam Journal* that promised that the region was "At the cusp of economic revolution"; with the other, they see the more pessimistic vision that they extrapolate from the series of setbacks and disappointments that have characterized the construction process so far. The "disquieting ambivalence" (Lesutis, 2022b) of this diplopia does not offer a future or "dream zone" towards which people can orient themselves (cf. Cross, 2015, p. 426). In the case of Thwake Dam, where people have come to realize that the areas around the dam wall will not be transformed into dream zones, what remains is mostly apathy or simply managing the status quo. This apathy runs so deep that some even hope to be displaced when, for example, the road is built or the first pipes are laid—seeing displacement and the associated compensation as an opportunity to start afresh in a new context where they have more control over their future.

This is the result of over-promising, not only of the benefits the dam will bring to the region once and if it is built in all four phases, but also of the promises made specific to the time of construction. Pre-construction community meetings failed to adequately communicate the immense impacts of the construction to affected households and residents. As Owuor *et al.* (2023, p. 9) concluded in their study of resettlement around the Thwake Dam, "Though dams, like other development projects, are designed to improve livelihoods for the host community, unintended consequences, such as loss of livelihood, shattered social ties, and land dispossession,

may overshadow the projected benefits. The psychosocial burden due to increased uncertainty over the future may further complicate the already precarious conditions for the individuals."

Infrastructural violence unfolds around the dam in two ways, long before its completion. The first form of violence is the materially prolonged and indefinite burden of living near the construction site, and the second is the immaterial losses experienced by those living around the crumbling promises of infrastructure, unable to orient oneself towards a future. On the one hand, there are the losses of misguided anticipation and investment, but also the sense of betrayal and (as the above quote so powerfully illustrates) the growing realization that the prospect of development and consequent improvements in everyday life were political deceptions in the interests of others who are to benefit.

Building on this, the empirical evidence presented here suggests the need for an active academic discussion on the landscape of anticipation regarding infrastructure under construction. Specifically, we assert that the marginalization of those most affected is driven by intentional false promises, which are perpetuated throughout the construction process. A central component of the marginalization of those most affected is the immense lack of information by the developers coupled with the upholding of promises that clearly cannot be kept.

6. The non-economy of anticipation and "built-in" violence

The infrastructural promise or "logic of improvement" (Braun, 2020) is used as an important political tool to keep what Cross calls the "economy of anticipation" (Cross, 2015) alive. With our notion of the non-economy of anticipation, we describe the time during project implementation when this infrastructural promise has lost its force or is superimposed by the immensely negative consequences of the construction work. It is an attempt to highlight the insecurities and everyday hardships and, to a certain extent, the betrayal of the people most affected by project implementation as a result of the political game that unfolds around the implementation of megaprojects. People respond to delays, secrets, and unfulfilled promises in various ways. Workers go on strike, not merely as a struggle for inclusion, but as a demand for fairness and justice. Landowners who were either not included or only partially compensated live double lives. They purchase land further from the dam while holding onto portions near the dam in hopes that these areas will eventually be included in compensation decisions. For instance, the story of a man in a small, lifeless market illustrates this predicament, where he does not stay because he perceives it as a viable future but, solely to make sure his right to compensation is not waived in his absence. Additionally, compensated families who have relocated return to farms on the compensated land or utilize these lands for a few seasons of crops before the dam is completed and fills with water. These abandoned lands are seen as opportunities for a future, however temporary, yet they also deny a sustainable future. Reclaiming these already compensated lands also indicates the delay of the project and the intention of former landowners to "do something on the land instead of watching it lie idle."

The non-economy of anticipation creates ruins even before the project achieves its goals. While ruins and ghost towns are part of the displacement process, they are also created by false promises and project delays. The sites, villages, and centers around the Thwake Dam are full of shops, restaurants, and rental houses set up in anticipation of a thriving business, only to close before the project is even completed. If you squint just right, you might be able to see the affluent future "dream zones" that the people anticipated when they built these structures. Now, however, these visions coexist with the sinking realization that these dream zones were just that: dreams—ephemeral and unattainable, with no grounds on which to build a future.

Projects such as mega-dams often go over budget, are delayed, and under-utilized, and yet the promises used to gain approval for these very projects continue to be made at the expense of those most affected by them. This reflects a form of infrastructural violence inherent in mega-dam developments within Kenya's modernist political landscape (Lesutis, 2022a). Li (2018) describes these inherent forms as the "built-in" violence of infrastructure, a form of harm that becomes normalized through certain infrastructure developments. The non-economy of anticipation describes a situation where the vibrant activity of anticipating the future is still present as a ruin of its former self but is now overlaid by violent uncertainty and apathy. Fueled by the opacity of infrastructure planning in Kenya, the future around infrastructure is presented by developers as a vague promise,

even when that future is already materializing and clearly heading in a different direction. Unlike during the planning and preparation of the dam's construction, where the violence of displacement was open, visible, and more sudden, during the construction it is a process that is slowly uncovered.[8] Rather than problematizing the actual implementation of a mega-dam in the region, we have focused on the misuse of the infrastructural promise and the extreme lack of information about infrastructural planning. We show how infrastructural violence (Rodgers & O'Neill, 2012) unfolds around large-scale infrastructure long before the project is actually completed. However, while our approach does not aim to critique the act of construction itself, it nonetheless arrives at a similar conclusion: the violence in our case study displays characteristics of being "pervasive, routine, and built-in" (Li, 2018, p. 335).

7. Conclusion

In this article, we move the discourse on economies of anticipation from the planning stages of infrastructure projects to the construction phase. We show how the lack of transparency about project details and subsequent project phases forces regions to a standstill, creating uncertainty that prevents any action towards the future. Infrastructural violence can therefore arise from completely immaterial aspects of the project, independent of project outcomes and potential future benefits. Infrastructure politics, in which costs and project timelines are systematically underestimated and benefits overpromised, mean that communities around construction sites are unprepared for the hardships associated with megaproject development. In this way, the marginalization of already peripheralized communities materializes during the time of construction. The article examines how the initial promises made to get the necessary support and funding for the infrastructure project are tested in the time under construction, which can lead to disillusionment for people who initially bought into the promises and made anticipatory investments accordingly. We contribute to the discourse on infrastructural promises by introducing the notion of the "non-economy of anticipation," a state where the ruins of the promises are too present to allow people to move on, yet too absent to inspire confidence in the future. The non-economies of anticipation exist in a state of paralyzing "double vision" of two futures, one characterized by eager anticipation, the other by disenchantment.

Building on the political ecology of dams, the case of the Thwake Dam illustrates how the stalled construction phase intensifies socio-political tensions. The "non-economy of anticipation" concept reveals how the uncertain and prolonged nature of construction immobilizes local communities, leaving them unable to navigate or invest in their futures. This paralysis exposes residents to the compounded negative impacts of living in a region "under construction." By examining the construction phase of the Thwake Dam, we show that the infrastructural violence of mega-infrastructures is not only built into the materiality of the object but also deeply embedded in the politics of infrastructure development. Furthermore, we contribute to a temporal political ecology of dams that emphasizes the distinctive character of each phase of infrastructure development. Even as infrastructure temporalities are fluid and non-linear, the people living around Thwake Dam perceive a clear development from high expectations to a significant decline, whereby the inflection point was the time of construction.

In analyzing the material and immaterial violence associated with large dam projects, the different phases of infrastructure development provide critical insights into the forms of violence that are experienced and help to identify the groups that are affected by them. Both differ significantly between the planning, preparation, and construction phases, as our case study shows. By conceptualizing the construction phase as a distinct and critical period in the lifecycle of infrastructure projects, we aim to inspire further empirical and theoretical investigation into the unique forms of violence and marginalization that manifest themselves during this phase.

[8] See Kallianos *et al.* (2023) for a discussion of more indirect, cross-scalar, and gradual forms of "infrastructural harm."

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