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Abstract

This paper develops an analysis of the politics and temporality of infrastructure through a focus on the idea of a project. A project (noun) is an assemblage of expertise, labour, materials and resources. The development of a project to build a port, pipeline, a mine, or a hydropower plant entails the mobilization of ideas, finance, political support and the law, the containment of material forces, as well as the organization of expertise, resources and labour. To *project* is also a verb; to throw forwards or to imagine, visualize or speculate on a possible future, which may or may not be actualized in practice. Moreover, individual infrastructural projects are often built on the legacy of earlier projects and conceived as contributions to ambitious projections of the future – including modernization, socialism, development and state building. Our analysis of the politics and temporality of projects is both developed and illustrated through an account of infrastructural projects in the Republic of Georgia which are also understood as contributions to a larger project of transition.

Keywords: project; transition; infrastructure; hydropower; energy; politics; temporality; Georgia.

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Introduction

In an essay published in 2000, the anthropologist Anna Tsing placed the idea of the project at the heart of her analysis of modernization, globalization and what she termed, ‘the global situation’. ‘Modernization, like globalization, was seductive. It was many years before social scientists moved beyond endorsements, refusals and reforms of modernization to describe modernization as a set of projects with cultural and institutional specificities and limitations’ (Tsing, 2000, p. 328).

Yet, if the dreams of both modernization and globalization have faded, as Tsing observed, the idea of the project, which was so central to her analysis, has had remarkable resilience. Even when the ruins of earlier modernization projects are scattered across the landscape, there is no shortage of new infrastructural projects. Tsing (2000) notes that earlier critical studies highlighted ‘the social practice, material infrastructure, cultural negotiations, institutions and power relations through which modernization projects work – and are opposed, contested and reformulated’ (p. 329). In this paper we pursue the idea of the project, expanding and reformulating her analysis of the ways in which projects are both assembled and disassembled. Moreover, whereas the ‘global situation’ for Tsing was marked by the wider projects of modernization and subsequently globalization, we observe that the present period is one in which infrastructural projects have come to be justified as contributions to ‘transition’ and as responses to climate change (Gutierrez *et al.*, 2019). In her book *The licit life of capitalism*, anthropologist Hannah Appel understands capitalism not as a pre-existing context but rather as a ‘project, a constant ongoing experiment, a desire, a haunted hope’ (Appel, 2019, p. 26). As such, capitalism has come to include both successful and failed projects, which are themselves thought to be elements of wider projects.

What is a project? First, for us, a project (noun) is an assemblage of expertise, labour and resources. Tsing herself defined projects as

organized packages of ideas and practices that assume an at least tentative stability through their social enactment, whether as custom, convention, trend, clubbish or professional training, institutional mandate, or government policy. A project is an institutionalized discourse with social and material effects. (Tsing, 2001, p. 4; see also Tsing, 2000)

But while this is a good starting point, sustaining projects, as Appel (2019) insists ‘requires a tremendous amount of work. From manual, managerial, domestic, and political labour; to material infrastructures and technologies; to legal, ethical, and affective framing processes’ (Appel, 2019, p. 3; see also Graan, 2022, p. 743; Nadai & Cointe, 2020, p. 150). A focus on the ‘tremendous amount’ of diverse forms of work lies at the heart of our analysis of projects. Moreover, if projects have, as Tsing observes, a ‘tentative stability’, we stress

how they can be destabilized, both through explicitly political forms of action and non-human forces.

Yet, at the same time, *to project* is a verb. To project is to throw forwards or to imagine, visualize or speculate on a possible future (Abram & Weszkalnys, 2016, p. 9; Born, 2006). As Andrew Graan (2022) suggests, projects are both *logisitical* and *visionary* (p. 736). A projector is an instrument or person that performs the task of *projection*; an act that may be considered more or less realistic about the possibility that a project may be actualized in the future. At the same time, it is not possible to understand individual infrastructural projects without mapping the layering of the history of earlier projects, including unrealized and unbuilt projects, on which they rest. Indeed, the ‘history of international development is littered with the wreckage of failed projects’ (Scott, 1998, quoted in Carse & Kneas, 2019, p. 10). All too frequently, projects fail to materialize, or they are stalled, or remain incomplete or unused. The debris of incomplete projects remains.

The paper is structured as follows. First, we introduce our analysis of a particular kind of project: infrastructural projects, developing from the accounts of Tsing, Appel and Graan and drawing on ethnographic analyses of infrastructure as well as our own fieldwork carried out over the past two decades (Barry, 2013, 2021; Barry & Gambino, 2020b; Gambino, 2021). In the second half of the paper, we illustrate and develop aspects of our broader analytical approach, which we have not previously highlighted in our earlier research. In particular, we discuss the patchwork project of post-Socialist and post-carbon transition as the framework against which a proliferation of infrastructural projects has been justified, focusing on post-Soviet Georgia. We zoom in on one major infrastructural project that is currently not completed, and may never be, although its impact on communities and the landscape remains: the Namakhvani hydropower plant (HPP), situated in west Georgia. In the final section, we interrogate the ways in which infrastructural projects can be destabilized as well as assembled, potentially contributing to both the profusion and debris of incomplete projects.

Infrastructural projects

The development of a project to build a port, a pipeline, a mine, or an HPP entails the transnational organization of resources and expertise, ideas and political support that are considered critical to the projection of these infrastructures. Here we advance five propositions concerning projects as ‘organized packages of ideas and practices’ that are oriented towards a particular kind of temporality: the projected stabilization of the project over time. We illustrate and develop these propositions further in the second half of the paper.

The concept of infrastructure is often associated with the organization of space. Infrastructures are thought to provide the material base that enables materials, energy, information, money and people to circulate (Barry, 2006;

Harvey *et al.*, 2017; Star & Ruhleder, 1996). Our first proposition is that the different elements of a project need to be assembled in time as well as in space. Through observing infrastructural projects, it is possible to unveil the not-so-obvious ways in which ‘infrastructures work on time’ (Mitchell, 2020). Projects are charted both as a sequence of activities and in parallel. One striking image from a visit to an oil company office in Tbilisi during an earlier period of fieldwork was the presence of a long wall chart, stretching all the way down one corridor of the building of the sequence of activities – such as surveying, archaeological fieldwork, public consultation and construction – that had to occur in different places at different times during a pipeline construction project. Another chart provided a summary of ‘principal environmental investigations and reports’, stretching over nine years, which projected the potential impact of pipeline construction in the future (BTC, 2002). Such diagrams are rarely visible to the ethnographic observer, and they cannot routinely be replicated, because of their confidentiality, yet they speak to the need for tight coordination between different contractors and practitioners, and between engineering, environmental science, public relations, finance and politics. The temporal organization of projects is bound up with the shifting division of labour between different forms of work, including precarious labour on short-term contracts, and planners and consultants who are expected to tie different elements of projects together. The modern corporation is surely not as integrated as it once was (Amin, 1994), but it nonetheless performs the work of integration and projectification, assembling different practices from different sources, and projecting their existence into the future (Jensen *et al.*, 2016). No wonder that projects need to be set out in a multitude of documents that define the shifting relations between a project’s dispersed component parts. Those who oppose projects may do so by disrupting the tight coordination of future activities that such diagrams project, slowing down specific activities, which slows down the project as a whole (Mitchell, 2011, pp. 21–24). Workers and critics as well as managers are aware of the critical importance of timing. Project diagrams are intended to be performative, but this does not mean that their performance will be realized in practice (Butler, 2010).

Our second proposition is that projects forge relations between resources and forms of work that need to be mobilized in the present in order for projected futures to be actualized and stabilized – to achieve the project’s projected performativity. As Graan (2022) observes, then, projects ‘are future oriented and temporary and they partition time, via schedules and deadlines, to regiment progress towards desired ends’ (p. 736). For the anthropologist Laura Bear (2016), ‘techniques, knowledges, and ethics of time conjoin in the mediating labour in/of time that is carried out by individuals and collectivities’ (p. 496). Here we develop our analysis through our longstanding engagement with different infrastructural projects over time, and with a wide range of forms of managerial, technical, manual and legal work that we encountered in our fieldwork over 20 years (cf. Levidow & Young, 1981). In our studies

the forms of work associated with attempts to actualize and stabilize the projected futures of infrastructural projects include:

- The financial and economic work underpinning all those practices that are concerned with valuation, including the determination of future income streams and profit (Bear, 2017), financial risk and the opacity of the future, interests paid on capital (Birch & Muniesa, 2020; Muniesa *et al.*, 2017); infrastructure debt (McArthur, 2023); ‘carbon finance’ (Bridge *et al.*, 2020; Langley *et al.*, 2021); and the legal management of contracts (Appel, 2019). International financial institutions may play a key role in imagining economic futures, in the case of the European Bank of Reconstruction and Development (EBRD) by designing interventions that are expected to foster and sustain a particular vision of the future (Kilpatrick, 2020, p. 51), reducing the risk to capital, enrolling foreign governments into supporting national projects, and projecting a future for national economies that justify investments in individual projects (Hildyard, 2016; Shields, 2020). Projects often have a modular quality, replicating a format that has been deployed elsewhere, reproducing a globally common practice locally (Appel, 2019, p. 152; Barry, 2006).
- The work of what we might call social experts is associated with efforts to acquire, gauge, manage and monitor public consent, particularly among affected populations, through practices of public consultation, compensation, corporate social responsibility (Rajak, 2016), transparency (Barry, 2013; Harvey *et al.*, 2013), market research (Born, 2006) and public relations (Murrey & Jackson, 2020). Indeed, ‘corporate support for social projects’ (Weszkalnys, 2016, p. 136) has become increasingly significant from the 2000s onwards, as international financial institutions and corporations have sought to measure, calibrate, contain and manage the opposition of local populations, environmental activists and international critics, thereby stabilizing and managing the political.
- The geopolitical and legal work required to consolidate and stabilize the relations between states and corporations through formal and informal agreements and contracts, as well as policing, intelligence and security, ensuring the political stability of the project over time. This geopolitical work involves bargaining and negotiation, but it also may entail assessments of energy security (Bridge, 2015; Kama, 2016) and the quality and stability of political systems, including both the level of transparency and the degree of concentration of political power. In the case of the EBRD, an institution that has been central to the post-communist transition project, such political evaluations ‘have sometimes led the Bank to modulate the volume and focus of its lending in some countries’ (Chakrabarti, 2020, p. xvii). The conduct of geopolitical and legal expertise may become the subject of criticism or rumour about the real interests of those involved and their links to foreign states or interests. As is well

known, both current and former politicians may become involved in the geopolitical project work, facilitating the construction of pipelines, dams and airports, forging connections between political and business elites.

If the three kinds of work identified above are oriented to stabilizing the social environments within which infrastructural projects' emergent futures are forged, then a range of distinctive forms of work are focused on achieving the material stability of projects over time. They include:

- The engineering work associated with the expertise and manual skills of construction workers, scientists and engineers involved in construction, logistics, electricity and water supply (Barry, 2013; Bear, 2015; Biglari, 2020; Björkman, 2015; Harvey & Knox, 2015). Historically, engineering labour tended to be managed directly by the state or by corporations such as BP, but it is now often performed by specialist contractors, who undertake subprojects, while corporations focus increasingly on the conduct of financial and geopolitical work. There are sharp inequalities between mobile professionals and consultants, skilled migrant labourers, who move internationally between projects, and local labourers, often paid very low wages on precarious short-term contracts (Appel, 2019; Barry, 2013; Graan, 2022, p. 740).
- The environmental and geoscientific work demanded by the conduct of environmental impact assessment, speculation about resources (Barry, 2013; Kama, 2016, 2020; Weszkalnys, 2015), archaeological research, pollution prevention, carbon offsetting, environmental and seismic risk assessment and monitoring (Hébert, 2016), and by assessments of the vulnerability, stability and durability of infrastructure more broadly (cf. Lakoff & Collier, 2010). Such forms of labour are also prompted by the dynamics of non-human forces and systems, which generate seismic activity, flooding and deglaciation that goes beyond the limits of human control (Bobette & Donovan, 2018). In principle, government and international institutions take responsibility for the conduct of this work, which is focused on the stability of the project in relation to its physical environment. In practice, the work is often delegated to consulting firms, and in these circumstances, environmental problems may be ignored or poorly researched – and on occasion, we have been shocked by the lack of awareness among financial experts about the risks of environmental change. In turn, this lack of awareness may attract forms of counter-expertise and 'citizen science' (Donovan, 2021; Tironi *et al.*, 2014).

We do not propose this classification of the types of work and expertise intended to actualize and stabilize projected infrastructural futures as exhaustive nor as ahistorical (cf. Gibson-Graham, 1996). Rather, it is intended to highlight the complexity and significance of, and the division of labour between, this vast range of forms of work and expertise. All of them perform

the anti-political work of stabilizing projected infrastructural futures (cf. Barry, 2002). Moreover, our focus on work and expertise elides any dividing line between practices conventionally thought of as material and those conventionally understood as political or immaterial (Yanagisako, 2015; cf. Lazzarato, 1996).

A third proposition is that projects may be destabilized by the movement and action of *non-human forces* – by materials and organisms, from tectonic plates (Barry, 2017) and concrete, toxic chemicals, insects and the consequences of climate change. If the capitalization of infrastructural projects, as Mitchell (2020) argues, depends on rendering the future stable in the present, then this apparent stability may be undermined by forces that escape the control of the project. In turn, the potential strength of such forces may be rendered visible by criticisms and contestations of the capacity of corporations and financial institutions to predict and stabilize the course of the future. No wonder that critics of projects may focus their attention on the unruliness and fragility of materials and the instability of the physical environment, particularly in relation to specific tactical points and moments at which such non-human forces have the greatest strength (Barry 2020, Barry & Gambino, 2020b). No wonder too that scientists and engineers, as well as those populations who are most directly affected, play a critical role in demonstrating the significance of non-human forces. Projects are not well-defined and contained units; they are global assemblages that contain a multitude of destabilizing elements that may become actualized over time (cf. Ong & Collier, 2005).

A fourth proposition is that the verb *to project* indicates an orientation towards the future, which may be planned or imagined, and involves matters that are known as well as ‘conjectures about hidden opaque realities’ (Abram & Weszkalnys, 2016, p. 9; Barry, 2013, 2021; Bear, 2015, p. 19; Born, 2006; Weszkalnys, 2015).¹ In this way, as Gisa Weszkalnys’ work on natural resources suggests, projects come to generate affects that ‘may take a variety of forms: euphoria, excitement, aggression, doubt, trepidation, frustration, disillusionment, and so on’ (Weszkalnys, 2016, p. 128). Yet, ‘there is no such things as a prognosis which projects itself into an absolute unknown’ (Koselleck, 2004, p. 101), as Reinhart Koselleck once observed. Projections of the future and narratives of history and change are central to the enactment of projects (Birch & Muniesa, 2020; Born, 2006). Efforts and structures put in place to govern or make sense of projected changes in the future are a critical focus through which politics and finance are negotiated in the present. At the same time, political actors often invoke historical antecedents when justifying their assessments or vision of future projects. In short, in the development of projects both history and the future are folded into the present. Therefore, while this paper is primarily focused on the way in which projects are always projected towards the future, we want to emphasize how they are also built on the legacy of intersecting pasts including the histories of communities, plans for and the remains of earlier projects, the haunting presence of previous political systems, transformations of the climate, the movements of tectonic

plates, and the legacies of colonial violence (Hecht, 2012). On the one hand, as we will outline in our section on transition, projects often take the form of a palimpsest – they are layered on top of earlier projects. On the other hand, fixing the future entails bringing multiple elements into motion. In order to project and produce stability, the development of projects justifies and becomes a source of instability in the present. In outlining the layering of projects we engage with a much wider body of work on the temporality and layering of infrastructure (Gambino, 2022), which draws attention to infrastructural projects' promise and failure (Alexander, 2023; Anand *et al.*, 2018; Fennell, 2023; Gupta, 2018; Kneas, 2018), their accretions (Anand, 2015) and instabilities (Jackson, 2015), their role in sustaining the time–space compression foregrounded by just-in-time capitalism (Bear *et al.*, 2015), and their relation to geo-history.

A final proposition is the specific infrastructural projects that we refer to in this paper are often thought to be inscribed within more expansive economic projects (Barry, 2001; Gambino, 2019). Anna Tsing's analysis of the global situation highlighted the way in which specific projects were once thought to be elements of a wider project of modernization, even though this wider project lacked coherence. Today, if the aspirations of modernization have faded, there are now a myriad environmental, civil society and humanitarian projects (Graan, 2022; Krause, 2014; Sampson, 2003). The mobile operation of what we have termed ethical capitalism is enacted through projects. Here, we stress how infrastructure in the former socialist countries have been figured as elements of a project of transition, which was once understood as a post-communist transition and is now often understood as a low-carbon or 'green economy' transition (EBRD, 2018). Such larger projects themselves have to be assembled in parallel with individual infrastructural projects, doubtless supplementing and giving impetus to their existence, but not determining their trajectory.

Methods

If projects are always in motion, projecting forwards and backwards in time, how can we make the contours of projects visible empirically? In our work, we developed three methods for visualizing projects. Firstly, a recursive engagement with the projects we analyse allows us to trace the accretions that make up present projections. Our research has been situated in the Republic of Georgia and, for two decades has traced the ongoing project to turn this country into a transit corridor for goods, energy and materials. Our understanding of projects is informed by the multi-sited and multi-layered fieldwork that we have undertaken, together and independently, across a number of the major infrastructural projects that have sustained Georgia's developmental trajectory since independence. Including the Southern Gas Corridor from Azerbaijan to Italy (Barry & Gambino, 2020b), which was called the South Caucasus Pipeline (SCP) in Georgia, the Baku-Tbilisi-Ceyhan pipeline (Barry, 2013), the

Anaklia port (Aslanishvili & Gambino, 2018) and the Baku-Tbilisi-Kars railway, completed in 2017 and currently working in test mode (Aslanishvili, 2022; Gambino, 2020). We have conducted over 200 interviews, as well as a wide range of informal contacts and chance encounters that are typical of ethnographic fieldwork.

Secondly, we recognize that the term project is an emic as well as an analytical term and trace the ways in which infrastructures are described as projects, whether in documents or by our informants. Through the course of our fieldwork over two decades, we have focused on the significance of project documentation. As we have already indicated, projects are routinely described in plans, documents, legal contracts, maps and diagrams. The long chart that one of us glimpsed stretching along the walls of the oil company's offices in Tbilisi, that outlined the tight coordination of different activities involved in pipeline production, was a visualization of a project in its totality. The classification as well as the content of these documents tell us not just about the division of labour between the different forms of expert practice that were brought together in the project, but also ongoing transformation of the project itself as it is adjusted as circumstances change.

Finally, studies of disputes offer a way of interrogating and opening up the different elements of a project (cf. Marcus, 1998, pp. 94–95). As we have discussed elsewhere, projects may have multiple critical moments and sites, and it is in these ecopolitical situations that they can be most politicized, and when criticisms serve to make problems explicit (Barry & Gambino, 2020b). Such ecopolitical situations may be quite brief or extended, alternative futures are projected and assessed, and are yet to be fixed, and evidence that is both critical for this period, and for this place, are needed (Barry, 2013). Through the course of our fieldwork, we became aware of how critics came to dwell on particular aspects of projects, and the work of particular practitioners, and not others. As we show, in the case of Namakhvani public debate focused on the hazards of the project and the risks that it posed, as well as the terms of the legal contract between the corporation and the Georgian government. By contrast to the case of BTC, where Barry maintained a position that was both critical and disinterested over a long period of time and had access to copious project documentation, our research in the case of Namakhvani HPP was brief and, recognizing the urgency of the situation, explored the potential for collaboration with scientists and NGOs that were critical of the project. In these circumstances, our analysis is necessarily partial, while benefiting hugely from the insights of the project's critics. In the analysis that follows we are indebted to the work of Georgian colleagues for their accounts and analyses of the subsequent controversy.

Transitions

Infrastructural projects are often built on the legacy of and contained within other projects. In the former socialist countries, the monumental change

unleashed by the collapse of the Soviet Union has been framed as a project of *transition*: a trajectory towards a capitalist or a 'postsocialist' future. While we don't dwell on the longstanding debates on the limitations of both the concepts of transition and post-socialism (Burawoy & Verdery, 1999; Müller, 2019; Pickles & Smith, 1998; Smith, 1999; Stenning & Hörschelmann, 2008) our focus on projects leads us to recognize that the project of post-Soviet transition is at once a powerful spatio-temporal (project)ion of the future and one 'overwritten' (Frederiksen, 2013, p. 73) on to the previous modernization efforts, during and before Soviet rule, that marked the regions it sought to transform. Infrastructures make this overwriting visible (Collier, 2011).

International banks played a central role in the translation of the idea of transition that framed the aftermath of the Soviet collapse and provided the justification for investment in a vast range of projects. In particular, the EBRD was founded in 1991 with the explicit aim to 'foster *the transition* towards open market-oriented economies and to promote private and entrepreneurial initiative in the Central and Eastern European countries' (EBRD, 2013, emphasis added; Buzar, 2008; Kilpatrick, 2020). While the goal of this bank-led transition was to generate a new world, at the centre of its project was the multifaceted and multiscalar effort of turning the public works of socialism into assets (Collier, 2011; Collier & Kemoklidze, 2014; Dunn, 2004; Humphrey, 2005). Indeed, following the formation of the EBRD, the 1994 World Bank report on *Infrastructure for development* (Ingram, 1994) proposed that infrastructure, rather than being a public good, should be understood as an asset (Muniesa *et al.*, 2017). The former socialist countries of Eastern Europe, the Caucasus and Central Asia have arguably acted as a vast laboratory for this transformation (Hirt, 2012). If at one pole of this process was the wild privatization (Humphrey & Mandel, 2002, p. 9; Sassen, 2010; Smith & Timár, 2010), at the other pole were the efforts of bankers and lawyers as well as the experts of various kinds employed by international financial institutions (IFIs) who promoted new infrastructural projects and sought to monitor the improving health of the economy of transitional states 'by measuring [their] monetary and fiscal balances' (Mitchell, 2002, p. 272).

By 2013, however, much of the post-Soviet countries were deemed by the EBRD to be 'Stuck in Transition' (EBRD, 2014). It is at this critical juncture that a new concept of transition emerged focusing on sustainability rather than solely on establishing a market economy: the Green Economy Transition (Bouzarovski, 2020; Bridge *et al.*, 2013, 2020; Bridge & Gailing, 2020; EBRD, 2018, 2019). Indeed, the transnational NGO Bankwatch argued that 'the 2008 financial crisis and its fallout across much of the EBRD's region of operations further challenged the concept of transition and shook up the perception that the western model of market economies was a model worthy of emulation' (CEE Bankwatch, 2016, p. 28). The crisis of transition, in this view, went hand in hand with the global financial crisis, in which the market's fragile hold on the future was exposed with disastrous consequences.

Existing in accretion to one another, these subsequent and overlapping projects of transition, have framed the ways in which infrastructural projects in Georgia have been envisioned by international financial institutions as critical elements of the projects of both transition and energy security.

Georgian projects: Sites and visions

As Kärög Kama (2016) has argued, transition in Eastern Europe has, however, always been a ‘highly contextual and contested process’ (p. 833). In Georgia, the project of transition appears to encase the multitude of infrastructural projects that have been thought critical to Georgia’s national developmental efforts and to its capacity to sustain its independence from Russia (Toal, 2017). In the wake of the Soviet collapse, successive governments set out to transform Georgia into a transit corridor, part of a new, great, Silk Road (Shevardnadze, 1999; see also Gorshkov & Bagaturia, 2001; Ocaklı & Ibele, 2023; Smolnik, 2018; Toal, 2017). From the viewpoint of Georgia, therefore, the temporal project of transition appears to be inextricably linked to the country’s infrastructural transformation into a corridor for the transit of energy, commodities and materials (World Bank, 2018). This spatio/temporal link between transit and transition was to be critical not just to the country’s economy, but to the independence and security of a post-socialist Georgia as infrastructures were to function as a material hinges connecting the new state both to its near neighbours, Azerbaijan and Turkey, and to the EU, the United States and China beyond (Gambino, 2019; Gambino & Jenss, 2021; Smolnik, 2023; Wyeth, 2021). In this geopolitical situation, the BTC pipeline was constructed across Georgia, bringing Caspian oil to Western markets along a route that bypassed Russia.

The project of transition had once been linked closely to the development of oil industry infrastructure projects, which became the focus for controversy in the early 2000s (Gachechiladze & Staddon, 2007). Yet, in addition to the infrastructure of the fossil fuel industry the proliferation of hydropower construction projects across Georgia acquired renewed political significance in the 2010s, the importance of which we came to be increasingly aware of during the course of fieldwork in 2018 when we witnessed a protest against a project in Oni, close to the Russian border, in Racha. Subsequently, in September 2019 we visited the Rioni Valley in the Lechkumi region of central Georgia, just north of Georgia’s second city of Kutaisi, with a view to developing a small collaborative research project with Georgian geoscientists on the geohazards associated with the projected construction of the Namakhvani HPP. We learned about a longer history of seismic activity in the region (see also Onur *et al.*, 2020), as well as the potential for landslides along the length of the Rioni Valley that could be generated as water entered into the rocks along the valley’s sides (Barry & Gambino, 2020a; Panozishvili, 2021b), potentially replicating the conditions that led to the 1963 Vajont disaster, when the collapse of a dam in northern Italy led to nearly 2,000 deaths (Kilburn & Petley, 2003).

Elsewhere, the decaying infrastructure of the Soviet period was all too evident. The road running along the valley had fallen into disrepair since the independence of Georgia from the Soviet Union in 1991, while new investment in the valley's existing infrastructure was doubtless considered unnecessary as the hydropower scheme would flood much of the existing road and lead to the creation of a 20 kilometres long reservoir between Namakhvani and Tvishi to the north. The Namakhvani HPP was projected as the future of the valley, but it also was part of the ruins of the past. At the same time, the valley had become depopulated, its villages largely unoccupied, houses falling progressively into states of disrepair. It was populated by plants, by wildlife, and as our host Maka Suladze said, by the river itself, with which she had a bond (Barry, 2021; Tsotoria & Gogua, 2020). These formed elements of the ecology of the valley that were external to the frame of the hydropower project.

Investment in hydropower has occupied a focal, if contested space, in imaginaries of Georgia's transition after independence and was projected to be the central resource of the new Republic after the Soviet collapse (Wyeth, 2021, p. 12; see also Swann-Quinn, 2019; cf. Bakker, 1999; Evren, 2022; Kaika, 2006). If transit was a vocation imposed on Georgia by its strategic location in the midst of resource-rich countries could investment in hydropower finally elevate this mountainous republic to the status of its wealthier neighbours? (Shevardnadze, 1999; Wyeth, 2021). This question had already been posed in the mid-twentieth century, and the largest dams in the country were built under Soviet rule. Indeed, near the village of Namakhvani, we observed some evidence of preparatory work carried out by Soviet geoscientists, but this earlier project was never constructed.² However, hydropower increasingly acquired renewed economic and geopolitical importance in the aftermath of Georgia's independence, supported by international banks, including the EBRD. The bank's 2004 Country Strategy for Georgia promoted the rehabilitation of the existing Enguri hydro plant and emphasized the EBRD's support for renewable energy, 'particularly through investment in mini-hydro plants' (CEE Bankwatch, 2016, p. 31; Wyeth, 2021). In the following years, the bank financed hydropower projects of varying sizes, including the construction of the massive Nenskra HPP (CEE Bankwatch, 2016; EBRD, 2020; Kochladze, 2021), and had planned to invest in the Namakhvani HPP, before withdrawing support (Chipashvili & Kochladze, 2019).

Namakhvani was one of many. Remarkably, by 2020 there were over 100 HPP projects either active or planned around the country, supporting the goal to transform Georgia into 'a regional platform for the generation and trading of clean energy' (Ministry of Energy, 2015). HPPs are thus intended to project Georgia's role as a competitive player within an extended European energy economy, while, 'Georgia's National Security Concept states that "ensuring the environmental security of Georgia and the region" is a key national interest' (German, 2021, p. 13). Energy economists pointed to a growing demand for electricity in Georgia, the reliance of the country on energy imports, substantially from Azerbaijan, and to a lesser extent from

Russia and Turkey, and the potential for energy exports in the future.³ More than just individual investments, thus, for its proponents, HPPs can be understood as hinges linking together the mutating projects of transition, transit, energy security, nation-state-building and independence. The Georgian state has been expected to play its part in supporting the geopolitical and legal work that makes such projects possible.

Since we both last visited our field sites in 2019, the infrastructural scars left by the Namakhvani HPP, have multiplied. In the Rioni Valley, the construction of the HPP had been halted after a 530-day long protest staged by the inhabitants of the many villages of the valley, supported by significant sections of Georgian society as well as the Georgian diaspora, leading to large demonstrations in Georgia's two largest cities, Kutaisi and Tbilisi (Rekhviashvili, 2021).⁴ Yet, while the cancellation of the project has been celebrated as a testament of the unexpected strength of the Rioni Valley community, by 2023, the road that leads to the villages remains had become marked by the debris generated by construction work, together with an unfinished path, a blocked bridge, and mountains of gravel, as well as new coves in the river bank where the rocks were excavated. Moreover, the Georgian government remained adamant that although the project was incomplete it had not definitively ended, but remained as a future possibility (Rekhviashvili, 2023).

Incomplete projects

Studies of infrastructure have often focused only on completed projects. Infrastructures are, in Susan Leigh Star's formulation the invisible base on which social and economic activity can depend, the existence of which becomes visible on breakdown. But a focus on infrastructure as a project, as Carse and Kneas (2019) argue, turns us to consider the proliferation of incomplete as well as functioning infrastructures; and the omnipresence of projects that have been destabilized, and futures unfixed. Megaprojects across the globe are systematically 'over budget, over time, over and over again' (Flyvbjerg, 2011), or they are cancelled. Incomplete projects, such as Namakhvani are as, if not more typical, as those that are completed.

The completion of projects maybe destabilized in apparently non-political ways, following, for example, mistakes in engineering design, lack of capital, poor regulation, together with the forceful presence of non-human materials and the violent dynamics of the earth that have not been managed or even recognized (Barry, 2017; Clark, 2010). In the case of the BTC pipeline the project became only temporarily destabilized by public disputes that focused on specific points along the route of the pipeline concerning its safety, the material composition of the pipeline, its environmental impact, and the performance of compensation to landowners and affected communities and the inequalities exacerbated by these processes (Barry, 2013). These disputes delayed the project and may have even improved it for some of those affected, but they did not ultimately

derail it. Nonetheless, the failure of geoscientific and engineering work to contain the non-human forces of heterogeneous materials, in as much as the latter have the capacity to collapse or disintegrate in the present or the future – could undermine the apparently smooth progress of projected futures.

In the case of Namakhvani, destabilization and delay could have followed from further geoscientific and environmental work, including criticisms of the Environmental Impact Assessment for the project.⁵ Indeed, it was noted the Namakhvani project would destroy one of the few spawning grounds for wild sturgeon (Knight, 2021), while geoscientists warned of the potentially disastrous risks of building a dam in the Rioni Valley, particularly given its proximity to Kutaisi (Panozishvili, 2021b). But in understanding the project's incompleteness we highlight not just the political significance of non-human materials and organisms (cf. Donovan, 2021), and their enduring presence in the lives of affected communities but the destabilization of the legal and geopolitical work performed by contracts, and the ways in which these become a focus for political mobilization including occupations and mass demonstrations (cf. Lazar in Bear *et al.*, 2018).

We have noted that there is a 'modularity' to infrastructural projects (Appel, 2019, p. 152). This modularity operates across different scales: the layered project of transition, as we have described it above, is understood to come into existence through a series of practices repeatedly applied to foster the right environment for diverse economies to grow sustainably. Beyond the material modularity of projects, legal instruments such as contracts are essential modular tools for the reproduction of transnational infrastructural projects. After all, those involved in drawing up contracts, often point to the existence and success of similar contracts elsewhere. Contracts, as many have pointed out, are the legal foundations on which contemporary capitalism rests, the hinges between different projects, the mechanisms through which the relations between states, corporations and infrastructure become fixed (Appel, 2019, p. 150). Yet such modular contracts also become a potential source of instability. While critics sought to destabilize the BTC project primarily by challenging corporate accounts of their social and environmental impacts, rather than the ways in which the BTC contract circumvented international guidelines, for example, central to Namakhvani's incompleteness was an interrogation of its contract, and a questioning of the demands that it made on both the state and the population (Rekhviashvili, 2021).

To be sure, in Georgia, hydropower projects have long been met with opposition by parts of the population (Wyeth, 2021). And, in recent years, since the intensification of the hydropower programme, protests against the construction of HPPs proliferated in each of the country's regions – from the easternmost district of Pankisi to the north-western borderland of Dariali and the mountainous regions of Racha, Svaneti and Adjara, as well as in Tbilisi itself⁶ (Antadze & Gujaraidze, 2021; Chubabria, 2017; Gujaraidze, 2013; see also German, 2021). The political situations that emerged around Namakhvani were animated by multiple forces including a sense of regional and national identity, religion

and a spiritual relation to the land and the river, the instability of the landscape, and opposition to the state, foreign investment, and the commodification of the environment (Nakhutsrishvili, 2021). However, while relatively limited at the time of our visit to the Rioni Valley in 2019, the opposition against the Namakhvani HPP gained momentum in 2020, after the Georgian government's decision to grant permission for preparatory works, leading to an occupation in the valley and large demonstrations in Tbilisi and Kutaisi throughout the COVID-19 pandemic (Rekhviashvili, 2023).

At this time, critics pointed to a series of hazards and risks connected to the construction of the planned dam complex (Chipashvili & Kochladze, 2021), the continued inability of the corporations and institutions in charge of HPP development to address the needs of affected populations, and the quality of the engineering work behind the project (Aroshvili, 2023; Panozishvili, 2021a). Yet if the instability of the geomorphology and political geology of Georgia potentially rendered the project problematic, critics also observed that the state had gifted state-owned forests and lands to the company leading the project and that the contract included a 15-year-long power purchase agreement – at a fixed price, higher in some seasons than the cost of imported electricity, and the provision of publicly funded infrastructure (Panozishvili, 2021b; see also World Bank, 2018, p. 74). Lela Rekhviashvili has argued that ‘the contract itself is a masterpiece of a peripheral country subjecting itself, or rather local political elites subjecting public resources, to the interests of international capital’ (Rekhviashvili, 2021, p. 4; cf. Tsing, 2004, p. 69). In other words, Georgia has been projected as a territory open to projects.

Indeed, the opposition to Namakhvani opened up the question of the project of transition that had framed Georgia's trajectory since independence. For Georgian critics, the Namakhvani contract was an event that made visible the social and environmental injustices that the government had been discounting not just for this project, but for years before, with resonances elsewhere. One of the founding members of the Tbilisi-based *Fair Energy Collective* argued that the Shuakhevi HPP, a project developed in the name of a green transition, succeeded in creating the country's first ‘eco-migrants’ (Aroshvili, 2023, p. 248; Bankwatch, 2021). This consequence, she asserted, can be traced back to

development policies [...] that on the one hand, prioritize a speculative economy over traditional ‘productive’ economies and, on the other hand, only extract and consume vital resources in such a way that leaves the environment depleted, and social life impoverished. (Aroshvili, 2023, p. 244)

In opening itself to projects of different kinds, and projecting a neoliberal image, Georgia has sought to attract foreign investment. Yet, in reflecting in 2019 on the possibility of a Green Economy transition in Georgia, an OECD task-force cautioned that, ‘while the country's policy environment has become conducive to investment, the institutional capacity of government bodies has not kept pace with improvements. Such capacity is necessary to analyse risks effectively

and develop, screen and implement infrastructure projects' (OECD, 2019, p. 72; see also UNECE, 2016, p. 6; World Bank, 2018, p. 26). In short, the capacity of Georgian institutions to monitor all the diverse forms of work necessary to deliver sustainable projects according to international standards had been questioned.⁷ Within this environment characterized by unfinished, imperfect and diverse forms of work, gathered into precarious projects, contracts, are *aspirational*. They are instruments through which countries like Georgia – marked by their 'complexity and unknowability' to outside investors – can aspire to a form of 'capitalism in their own image' (Appel, 2019, p. 170). In Georgia, the history of this particular aspiration is framed by the renewed project of *transition*. The contract forms part of the scaffolding that sustains this project, demonstrating the crucial work that legal contracts do to partition the responsibilities and risks of an uncertain future (Appel, 2019, p. 171).

Conclusion

In her account of the global situation, Tsing acknowledged that critical social scientists had taken some time to address the failures of the project of modernization. But in drawing attention to the idea of the project she made a wider point, which anticipated and paralleled efforts to develop critical accounts of the cartography of capitalism (Toscano, 2012). Projects have an elusive form; they proliferate, stall, acquire temporary visibility, and yet have sometimes lasting consequences. They may also, as we have argued here, often been built on the legacy of earlier projects, while forming fragments of wider projects. Critical analysis is forced to address their specificity.

Here we have done two things. One has been to focus our attention on an incomplete project, which was destabilized through political action. Incomplete projects – the construction of which has been stalled, or been destabilized, or simply abandoned – are arguably as, if not more, common as those that are functioning and complete (Carse & Kneas, 2019). The proliferation of infrastructural projects has generated an extraordinary excess of projects, many of which are never likely to be completed, yet the reasons why specific projects are abandoned are, of course, diverse. If infrastructural projects have proliferated globally, so have deliberate efforts to 'oppose, contest and reformulate' projects (Tsing, 2000, p. 329). A demonstration that blocks engineering work may exist in conjunction with forms of political action that mobilize critical expertise that interrogates the performance of scientific and legal work (Barry & Gambino, 2020b). Both forms of political action may have the effect of delaying a project by potentially disrupting the tight coordination and sequencing of the different forms of work that we have argued are so essential to projects, thereby both undermining their political or financial viability; projects turn out not to be stable, durable and functioning, but economic machines that may become destabilized at multiple points and over time. As we argued, projects may also be destabilized by the movement and action of

non-human forces – by materials and organisms, from tectonic plates and concrete, toxic chemicals, insects and the consequences of climate change. Projects also often have a modular or recursive quality, which may more or less replicate both other earlier projects and projects developed elsewhere, facilitating the mobility of both capital and specialist expertise (Anand *et al.*, 2018; Appel, 2019; Barry, 2006; Bear *et al.*, 2018). However, the modularity of projects is all too frequently ill-suited to the environment which they encounter and within which they are expected to be realized; the ubiquity and material evidence of incomplete projects serves as testimony. Our contention, which has resonances with the arguments of the social movement to *Save the Rioni Valley*, is that a sustainable project that was attuned to the specificity of the location would take a radically different form to the one that came to prevail.

Second, we have emphasized the continuing, arguably increasing, centrality of projects as organizational and political forms, at a series of scales. A project is a form of organization that is necessarily evolving, assembling and disassembling. Might we even say that projects are a characteristically dominant form of both capitalist and non-capitalist organization, although their significance is not often acknowledged? At the same time, individual projects are often framed as elements of more encompassing projects or what Tsing herself termed ‘the global situation’. In this paper we have stressed how the development of energy infrastructures in Georgia came to be justified as both an element of a national project of energy security and a contribution to the wider project of transition. If the idea of globalization once came to define the global situation, as Tsing suggested, the project of transition has arguably taken its place. But while specific infrastructural projects are increasingly framed as elements of a wider transition project, and their impact projected into the future, they are also necessarily situated, assemblages of finance, legal agreements, work and materials taking geographically and historically specific forms, built on the legacy of the past, including the histories of communities, the remains of previous infrastructural projects, and the geo and environmental dynamics of specific locations. All of these elements participate in unfolding ecopolitical situations that cannot be predicted in advance. While transition has become critical to the global situation it remains a contested and shifting project.

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Notes

1 Laura Bear has proposed the concept of speculation as a particular form of social action that involves 'secret conjectures' about hidden realities (2015, p. 19). While this concept is helpful, the idea of the project, introduced by Tsing and Appel, is more relevant for our purposes. Projects may often involve speculation, but the term project also highlights both the importance of expertise in the development of infrastructure projects, a specific way of organizing specialist forms of labour, and the 'tentative stability' of this organizational form (Tsing, 2000).

2 As Ryan Wyeth has shown, there is a long history to the idea that the country is rich in hydropower resources, which is linked to the long-standing and still dominant view that this potential has been under-utilized (Wyeth, 2021, p. 94).

3 In the period 2018–2020, prior to Ukraine War, 71 per cent of electricity imports came from Azerbaijan and 21 per cent from Russia, while the vast bulk of gas imports, for both heating and electricity production, came from Azerbaijan (Pignatti *et al.*, 2021). At this time, a large proportion of existing domestic electricity production (c 80 per cent) came from hydropower (IEA, 2023), but other renewable sources remained largely undeveloped (see also Ministry of Economy and Sustainable Development of Georgia 2019). An OECD report noted that 'near exclusive reliance on hydro-electricity could create energy security concerns in the long term, as Georgia's water resources are particularly vulnerable to a changing climate' (OECD, 2019, p. 72; see also World Bank, 2018, p. 52).

4 In turn, on several occasions, the Georgian government depicted protestors as both undermining the country's energy security and serving the interests of Russia. These rumours were judged by critics as an attempt to discredit the movement (Rekhviashvili, 2021). Subsequently, in the spring of 2023, the Georgian government proposed to pass a bill aimed at restricting the ability of non-governmental actors, who receive foreign funding to participate in public life (Human Rights Watch, 2023).

5 A UN report on Georgia's environmental performance observed that the quality of EIA (environmental impact assessment) reports on new and existing infrastructure projects had tended to be poor (UNECE, 2016, p. xxviii).

- 6 This was not unique to Georgia. Opposition to the proliferation of new hydropower projects had also emerged elsewhere in the region, including in Turkey, Albania and Serbia.
- 7 The OECD noted that the shortcomings of existing practices had been recognized by the Georgian government and that Georgia aimed 'to adopt transparent procedures for assessing the environmental impacts of infrastructure projects' (OECD, 2019, p. 72).

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