

## INTRODUCTION

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# Contemporary Megaprojects

## An Introduction

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The Chinese Government announced the Belt and Road Initiative in 2013, and since then, more than 130 countries have embraced its vision of a Sinocentric expansion of global production and trade networks. Chinese President Xi Jinping highlighted the Belt and Road Initiative's unprecedented scale and scope when he hailed it as the “project of the century” (Dunford and Liu 2019). The Belt and Road Initiative is a mega megaproject—a meta mega project if you will—combining multiple initiatives that are emblematic of contemporary megaprojects. It strikes a chord with other massive-scale infrastructure initiatives geared toward continental integration such as the Greater Mekong Subregion, the Lamu Port–South Sudan–Ethiopia Transport Corridor, and the Initiative for the Integration of the Regional Infrastructure of South America.

The chapters in this volume suggest megaprojects are once again on the political agenda but this renewed enthusiasm for megaprojects is not simply a rehash of high-modernist planning. In contrast to their mid-20th century counterparts, contemporary megaprojects are often decentralized and pursued by a range of stakeholders who leverage cutting-edge technology to ‘see’ complex systems as legible and singular phenomena. They are unprecedented in their ambition and they have the potential to reconfigure long-standing relationships that have animated social and ecological systems. The chapters in this volume explore the novel features of contemporary megaprojects, show how the proponents of contemporary megaprojects aspire to technologically enabled omnipresence, and document the resistance that megaprojects have provoked.

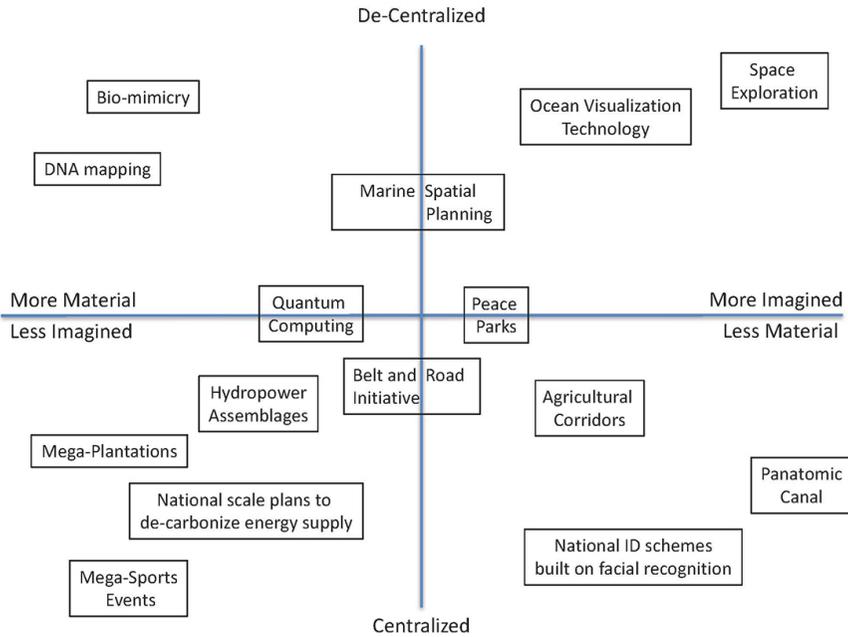
Contemporary megaprojects are not necessarily large-scale infrastructure developments comprised of brick and mortar. The cover image was taken in 2010 in Laos, and the barren vista that extends to the horizon presages the construction of what Miles Kenney-Lazar and Noboru Ishikawa (chapter four) refer to as a “mega-plantation.” The production of mega-plantations across Southeast Asia is decentralized, yet the constituent components cohere into the regional proliferation of monoculture agro-industrial landscapes. The emptiness of this landscape is jarring, absent of infrastructure save a single road that stretches into an unending vista that appears devoid of life. Yet it is this emptiness which denotes the complete reworking of this place. The decentralized pursuit of the transformation of this landscape fundamentally alters long-standing ecologies, biodiversity, and social relations and it is an order of magnitude greater than earlier modes of plantation and industrial agriculture. It constitutes an “operational landscape” (Brenner and Katsikis 2020) whose integration with global value chains necessitates the production and standardization of expansive territories (Schindler and Kanai 2019; Mezzadra and Neilson 2019; Arboleda 2020).

The decentralized nature of many contemporary megaprojects also separates them from high modernist schemes that imbued states and planners with omnipotence to “see” and manipulate their environments (Scott 1998). The centralized nature of planning in the postwar era imposed limits on what could be envisioned and undertaken. Indeed, the ambition of planners was blunted by their inability to exercise power on the ground, and/or fiscal and political constraints imposed by central government authorities. With the neoliberal turn in the 1980s, planners were disempowered, and in many countries, the envisioning of megaprojects was limited to those that could at least be partially funded by the private sector. Contemporary megaprojects are often envisioned or encouraged by states whose assertiveness has been reaffirmed, but a host of non-state actors play an integral role in their realization. This diffused authority, action, and responsibility allows for (1) projects of unprecedented scale and scope to be envisioned and undertaken, and (2) entirely new ways of “seeing” territory and populations.

Given that the scope, complexity, and organization of megaprojects have changed, it is helpful to distinguish axes of difference. We identify three, two of which are shown in Figure 0.1.

The horizontal axis captures the fact that megaprojects are not just things that change landscapes and infrastructure. They cannot only be measured in tons of concrete or earth moved. Megaprojects are imagined before they come to exist—and many only exist as figments of imagination, or as fragments of larger visions. And yet the prospect of a megaproject can have material effects for decades. As projects progress, they may move further to the left of the axis. They become more material—but not always. Some aspirational projects (space exploration and the colonization of Mars) will be animated by grandiose ambitions by necessity, whatever their realization. Other projects, because they are more decentralized (again, mega-plantations are a good example), are less imagined and unfold incrementally in real time.

The vertical axis captures the extent to which particular projects are centrally organized or diffusely planned. Megaprojects have traditionally been understood as singular discrete undertakings distinguished by their cost and complexity. It is only for that reason that they can so often be delayed and go over budget (Flyvbjerg 2014). But these days, with so many participants, there may not be a single timetable, or indeed a single budget to exceed. In this volume, we include decentralized projects purposefully undertaken by a myriad of actors, sometimes with little or no coordination, whose influence is cumulative and has the potential to fundamentally transform longstanding relationships that have animated social and ecological systems. To return to the mega-plantation example, the actors involved pursue a shared set of objectives and employ a singular body of expertise.

**Figure 0.1.** Axes of Difference in Contemporary Megaprojects

Their myriad and quotidian actions result in the regularization of agro-industrial production whose far-reaching impacts and the expansiveness of its landscapes constitute a megaproject despite the absence of centralized coordination. Note that some large diffuse projects, such as mapping the human genome, which was a large-scale exercise undertaken across many different units, can look more centralized and controlled as we zoom in on particular parts of the enterprise. Furthermore, the extent of centralized control is not fixed and can change over time.

Taken together, these axes allowed us to map the megaprojects referred to in this collection, as well as others with which we are familiar. Admittedly, plotting this chart required a considerable amount of subjectivity and the precise location of particular megaprojects is indeed debatable. The chart nevertheless demonstrates the fact that the nature of megaprojects has changed. The bottom left-hand corner—material changes brought about by central planning—has typically been the space for megaprojects, but contemporary megaprojects are more pervasive, ambitious, and decentralized than their antecedents. We encourage the reader to consider diffuse imagined projects that fall into the upper-right quadrant, which, even if they are never realized, may transform our societies and environments.

The final axis, not shown on this graph, is that of scale. Megaprojects can vary from the molecular (quantum computing, CERN) to the planetary and beyond (space exploration). They can cover vast areas and be concerned with the smallest entities. The point here is that “mega” can mean vast in scope in traditional human terms, as well as intensely intimate and intricate. The common denominator to both is that they have transformative potential and will still absorb hundreds of millions of dollars and many years of labor time. We have not portrayed scale in this diagram as it would become hard to read, but it is easy to envisage it forming a third axis.

The chapters focus on particular megaprojects, and we have organized them in a way that juxtaposes various types and highlights their variegated nature. We begin with the imaginative. Ashley Carse and David Kneas's premise is that many megaprojects do not actually happen. In many cases they never break ground; or, if they do, construction may be stalled or never completed. And yet, the authors demonstrate that these projects are significant, and can reshape politics, landscapes and social experiences. Nevertheless, Carse and Kneas contend that academics have insufficiently incorporated the unbuilt and imagined into their theories of why and how infrastructure matters. They suggest a crucial way of understanding incomplete megaprojects is through "timescapes" (following Bear), in which different understandings and experiences of time coalesce into "time-knots" (following Chakrabarty). The authors offer a series of heuristic devices with which to examine the time-knots of unbuilt and unfinished infrastructures: "shadow histories, present absence, suspended presents, nostalgic futures, and zombies." "Shadow histories"—the histories of things that did not happen, such as the Trans-Saharan Railway, the Panatomic Canal (to have been constructed by detonating two hundred large nuclear warheads), or Atlantropa (the project to dam, and drain, the Mediterranean Sea)—offer insights into the contingencies of the present. "Nostalgic futures" point to the remembered promises and aspirations that once accompanied a project. "Present absence" refers to the consequences of failed, incomplete, or withdrawn projects. "Suspended presents" capture the transformations of daily life associated with experiences of delay, from hope to disillusionment. The Kaeng Suea Ten Dam in Thailand, for example, has threatened the eviction of communities for nearly four decades, yet it remains a vision. The "zombie" heuristic, on the other hand, draws attention to putative projects that, while never quite suspending daily life by their imminence, also never quite go away.

The subsequent chapter moves across the framework to focus on decentralized megaproject whose objectives are increasingly realized. Veronica Davidov shows how biomimicry serves as an inspirational source for the optimization of technologies such as robotics and industrial design. Nature is thus constructed as an abundant mega-resource. However, biomimicry as an "epistemic object" does not entail a homogenous field. Rather, it coheres in a variety of ways in different disciplines. For example, it can be regarded as a philosophical object, it can be debated ethically, or it can be understood as a design praxis and method. Moreover, there are several practices—such as particular strands of geo-engineering and the practice of trophic rewilding—that might not officially be categorized as biomimetic but would fall within the scope of biomimicry and should be explored within the field to underline its potentials and implications. Davidov suggests the most fruitful way of engaging with biomimicry is to situate it within broader social, political, and economic contexts in order to understand its epistemic and economic merits and the challenges it poses. Multiple ethnographies of biomimetic projects would enable such critical encounter.

Mega sporting events have long been touted as transformative and John Lauerermann shows how they have become increasingly contested and controversial. There is a growing cleavage between the proponents and opponents of these events. Claims made by proponents of mega-events that emphasize their long-term benefits are increasingly met by skepticism and protests. Lauerermann traces and compares the scholarly literature on these two fronts of urban politics. Advocates of these mega-events argue that after a few weeks of elite use of urban space, the infrastructure can be used by ordinary residents, or they emphasize the potential of these projects beyond obvious goals such as the possibility of influencing other institutional platforms or programs. However, as Lauerermann demonstrates, the recent surge of protests and resistance against these events challenges this narrative. These mobilizations are temporary political campaigns, referred to as "fast activism," and have been increasingly successful in forcing cities to cancel bids.

The emergence and development of monoculture agro-industrial plantations across Southeast Asia is the subject of chapter four. Kenney-Lazar and Ishikawa demonstrate how these projects have led to displacement and replacement of human and nonhuman communities. Although the ideological driver of these projects dates back to the colonial period, they explore the more recent emergence and origins of “mega-plantations.” The proliferation of mega-plantations has led to widespread displacement and dispossession, and they have been accompanied by far-reaching environmental impacts such as deforestation, forest fires, and air pollution. Despite diversification of political strategies and increased numbers of strikes, protests, and multiple forms of everyday resistance by different groups of people, the expansion of land incorporated into mega-plantation continues for the foreseeable future.

We switch from mega-plantations to another type of operational landscape in chapter five, in which Serena Stein and Marc Kalina interrogate agricultural growth corridors. They are meant to foster rural development in the Global South, and the authors show how they are imagined and experienced on an everyday basis. Many “corridors” are rooted in colonial history and developmental trajectories of the mid-twentieth century, yet they have proliferated across the Global South in the past decade. These megaprojects combine infrastructure investment with agribusiness across borders and regions and mostly emerged in Africa after the 2008 crisis of food, fuel, and finance. Their proponents anticipate that through the integration of smallholder farmers to national, regional, and international production networks, these corridors reduce poverty and provide food security. However, as research has shown, they disrupt smallholder farmers’ operations and their access to food. They also inhibit access to shared resources such as water and land. Hence, these projects have been fiercely contested by various civil society groups and social movements. The authors encourage future research to attend to processes of becoming and the ways people experience them on the ground.

Hydropower projects should be understood instead as global assemblages with specific relations to networks of power rather than a singular infrastructure project according to Grant Gutierrez, Sarah Kelly, Joshua Cousins and Christopher Sneddon. They suggest understanding different forms of engagement and the significance ascribed to hydropower projects by various actors is a more meaningful way of understanding these projects. For most of their history, large hydropower projects have been embedded in hegemonic modernist and nationalist projects and were considered one of the most important pathways to modernization. However, their long-term negative social and ecological impacts provoked contestation and conflict locally and transnationally. These movements set the stage for the emergence of one of the first grassroots ecological movements in the Global South, and an alliance of transnational anti-dam groups have recently popularized the slogan “water is life” to emphasize the interlinkage between water and power. In its latest phase, small and decentralized hydropower projects are initiated in the name of support for renewable energy, greenhouse gas emissions, and economic development despite opposition of scientists and activists.

The expansion of hydropower capacity is not the only megaproject in the field of water management and governance. Luke Fairbanks, Noëlle Boucquey, Lisa Campbell, and Sarah Wise show how new marine spatial planning (MSP) projects are being implemented with the intention of governing and regulating oceans worldwide. MSP focuses on combining and managing traditionally disconnected individual sectors such as fishing and shipping through an overarching system of governance. The authors highlight four key elements of MSP: planning discourse, ocean economies, online data, and new networks of ocean actors. The integration of multiple sectors across these four fields purportedly contributes to socioecological harmony and broader goals of sustainable development. The authors question these claims through an analysis of one MSP initiative in the United

States and they urge researchers to apply relational theory and political ecology in future analyses that examine the implications of MSP megaprojects.

As noted above, the aspiration to “see” everything in an expansive totalizing vision is not new, but technological advancements are changing and expanding the field of “vision.” Stephanie Ratté narrates the novel ways in which a range of actors are leveraging cutting-edge technology to render oceans knowable and measurable. She shows this is a highly decentralized project undertaken by actors whose objectives are occasionally in conflict. For example, the transformation of oceans from a vast unknown wilderness to a legible and catalogued space is a goal pursued by those hoping to exploit this frontier’s resources, as well as by conservationists. Ratté argues that one consequence of transforming this unknown frontier into a singular topographical space is that humans—and their impacts on maritime ecosystems—are obscured.

The book moves from oceanic depths to the final frontier in the last chapter. Micha Rahder focuses on imaginaries of outer space, which fuel renewed interest in space exploration. Fears of environmental and sociopolitical catastrophes have, in recent decades, informed two interconnected imaginaries. The first, which this chapter refers to as Earth 2.0, envisions an improved human future, while ecocentric imaginaries decenter humans as the prime agents of change. They go beyond human timescales and focus on evolutionary ecologies that defy human exceptionalism and their mastery on/of the planet. According to Rahder, Earth 2.0 motivates investments, focuses on the present and, in most cases, ignores the inherent inequalities linked with such an imaginary. In contrast, eco-centric imaginaries focus on interrelations and commonalities and do not aim at reasserting domination or control on Earth. The author suggests both approaches should become more sensitive to politics related to the particularity of their imaginaries.

When taken together, the chapters demonstrate several trends. First, contemporary megaprojects are bankrolled by new sources of finance. We began this introduction with a discussion of the Belt and Road Initiative, and China is one emergent source of mega-project finance. After the 2008 financial crisis, China “combined huge government spending with a spectacular loosening of monetary policy” and “for the first time in the modern era, it was the movement of the Chinese economy that carried the world economy” (Tooze 2018: 249, 251). The US Department of the Treasury embarked on an equally deliberate fiscal stimulus package meant to calm investors and bolster markets. The result has been a decade of cheap capital that has often been funneled into megaprojects.

While capital may become more expensive in the future, there seems to be a durable appetite for megaprojects among a diverse group of financiers and investors. There are hard economic drivers behind this trend. As Sarah Bracking (2016) has argued, megaprojects provide a means by which the “great predators” of capitalism extract huge revenues from states. These they derive both from the construction of things and from the contracts to run and maintain them, which provide revenue streams that can then be financialized. As Ashwin Desai (2016) put it (writing of the World Cup in South Africa): “Global finance capital . . . thrives in a world of large-scale investment in mega-projects, mega-events, and the short-term investment, long-term debt, and creative financing associated with them” (cited in Bracking 2016: 94). The economic gains fuel the establishment of a social field in which megaprojects are highly valued. Just as high modernism had its priests and practitioners who operated in a rather rarefied and insular field, megaproject planning is validated within an emergent social field animated by global networks of professionals who contribute to the production of a body of knowledge and activate finance for undertakings that can only be described with superlatives.

All this is contested, and resistance to megaprojects takes many forms. The most obvious example is the collective resistance against the construction or intervention of a particular megaproject, but this is difficult when megaprojects are diffuse. Quite simply, villagers in Laos may block a single mega-plantation, but they are unlikely to hold back

the unrelenting tide of agro-industrial production that threatens to sweep away everything before it. Thus, another form of resistance that is less visible but just as important is the undermining of the epistemic justification for the constituent components of decentralized megaprojects. Alternatively, opponents of megaprojects may undermine megaprojects by embracing the discourse and modes of analysis employed by their proponents. Although all types of resistance come with risks and trade-offs such as community disempowerment and creation of social divisions; continuous resistance over time can lead to formation of long-lasting networks of people affected by these projects

Finally, the articles in this collection raise a series of questions that can be taken up in future research on megaprojects. First, what are the objects upon which proponents of megaproject seek to act? While social engineering was typically among the objectives of high modernist projects, it has not been emphasized by the articles in this volume. That is not to say people are not impacted by megaprojects. Rather, the “improvement” of “deviant” or “abnormal” target populations (Li 2007) is not an explicit goal of megaproject proponents. Instead, megaprojects seem to target scales and places that are far removed from everyday life, such as the molecular and the seabed. The transformation of territory seems to be an overriding priority of many contemporary megaprojects, one result of which, according to their proponents, is the improvement of the well-being of local residents. To take Stein and Kalina’s analysis of growth corridors as an example, they are not meant to act directly on target populations; rather, local farmers will supposedly benefit, as transportation infrastructure will afford them improved access to markets. Thus, the megaproject provides peasants with the opportunity to act entrepreneurially, but there is no attempt to act on them directly and transform them into entrepreneurs. Ultimately, contemporary megaprojects make individuals responsible for their own “improvement.”

Second, how do the diffused networks of actors that undertake megaprojects “see” the spaces, people, and landscapes upon which they act? One theme that emerged in this volume was the recent technological advancements to seeing people and things as data. The codification of vast amounts of information into ones and zeros can itself be a megaproject, and at other times, it enables megaprojects. Just as Shoshana Zuboff (2015) argued that the aggregation of a vast amount of data has allowed for human experience to be reduced to more measurable behavior, technological advancements in a range of fields allow for entirely new modes of grappling with what Timothy Morton (2013) refers to as ‘hyperobjects’. The contributions in this volume demonstrate that a host of actors are applying recently developed technologies in attempts to render legible the incomprehensible vastness of oceans and outer space. Thus, there is a desire to smash epistemological as well as ontological boundaries, which may indeed be a fundamental human trait, but contemporary ways of seeing and knowing are driven by aspirations of technologically enabled omnipresence.

Will contemporary megaprojects totalize experience and catalogue all existing relationships among people and things? It seems inevitable that certain places, people, and things will be excluded. How will people remain illegible, and will this be though their own volition? And how do these modes of seeing and knowing activate new relationships and behavior? These are the questions that are raised by the chapters in this volume.

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