

## **The Global Politics of Large Dams: Notes on Christopher J. Sneddon's *Concrete Revolution***

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### **Review article of:**

Christopher J. Sneddon, *Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation* (Chicago: University of Chicago Press, 2015, 270 pp., USD 45, hardcover).

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In the last decade, scholars working within Actor-Network Theory (ANT) and more generally Science, Technology, and Society (STS) have made significant contributions in many social science disciplines, including International Relations (IR).<sup>1</sup> The defining features of ANT are many, such as the disruption of traditional binaries,<sup>2</sup> exploration of the relevance and significance of infrastructures to world politics,<sup>3</sup> and implications of technological agency.<sup>4</sup> Arguably, however, the most important aspect of ANT has been its emphasis on the political agency of non-human objects and organisms.<sup>5</sup> On an empirical level, IR students have drawn on insights from ANT to study the agency of objects ranging from drones to garbage.<sup>6</sup>

Emanating from increasing recognition of the need to move beyond the individual human subject as the only form of political agency, ANT explores the circumstances under which non-human objects and organisms exert their own agencies. See, for example, Timothy Mitchell's work on Egyptian politics, wherein he explains how malaria-carrying mosquitos, sugar cane, and mechanized instruments of war help shape the course of modern Egyptian politics and economics as much as any minister or diplomat.<sup>7</sup> Mitchell argues that established modes of thinking such as Cartesian binarism, and the anthropocentrism of even the most materialist approaches often fail to capture the dynamism of machines, diseases, and even agricultural crops themselves. Mitchell looks at how extra-economic forces, such as malarial outbreaks, the subsequent development of DDT, and shifting supplies of irrigation

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<sup>1</sup> Mark B. Salter and William Walters, "Bruno Latour Encounters International Relations: An Interview," *Millennium-Journal of International Studies* 4, no. 3 (2016): 524-46.

<sup>2</sup> Jonathan Luke Austin, "We have never been civilized: Torture and the Materiality of World Political Binaries," *European Journal of International Relations* (2015):1-25, doi:10.1177/1354066115616466

<sup>3</sup> Andrew Barry, *Material politics: Disputes along the pipeline* (UK: John Wiley & Sons, 2013).

<sup>4</sup> Anna Leander, "Technological agency in the co-constitution of legal expertise and the US drone program," *Leiden Journal of International Law* 26, no. 4 (2013): 811-31

<sup>5</sup> Andrew Barry, "The Translation Zone: Between Actor-Network Theory and International Relations," *Millennium: Journal of International Studies* 41, no. 1 (2013): 420.

<sup>6</sup> Michele Acuto, "Everyday International Relations: Garbage, Grand Designs, and Mundane Matters," *International Political Sociology* 8, no. 4 (2014): 345-62.

<sup>7</sup> Timothy Mitchell, *Rule of experts: Egypt, techno-politics, modernity* (Berkeley: University of California Press, 2002).

and monocrop agriculture, have molded and shaped what is and what is not labelled as an economic activity in Egypt (and elsewhere). In turn, these extra-economic forces are also important in creating corresponding agencies for economic activities, which have typically been seen as the results or effects of human activity only. Mitchell shows his readers how these forces not only determine and define human activities, but how they do the same for non-human activities or forces.

The scope of Mitchell's argument can easily be extended to other contexts. The narrative of the Egyptian economy as an unintended site of 'techno-politics' is very much global, and weaves together the effects of mechanized warfare, capitalism, and colonialism. Indeed, Mitchell's thinking represents the latest paradigm shift in the thinking about the Middle East, as a new form of materialism begins to trump discourse analysis as the latest corpus of theory to storm through academia, along with ANT.<sup>8</sup> As Michele Acuto and Maximilian Mayer remind us, the role "large technical systems" have played in the realm of IR theory has always been there, if not always at the forefront.<sup>9</sup> If the seeds of its becoming are already surfacing in IR, one problem that Andrew Barry cautions us on is the tendency of ANT scholars to "over-expand" agency, which may then clash with the already well-defined categories of political actors in IR.<sup>10</sup> The goal, then, of this engagement between STS, ANT, and IR is one of refining and specifying the contours of political action on a global level. In this sense, how certain objects—or what Acuto and Mayer call Large Technical Systems (LTSs)—act in a certain manner is increasingly relevant and meaningful in IR.

One recent work that contributes to the discussion of lifting STS into the realm of global politics is Christopher J. Sneddon's *Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation*<sup>11</sup>. Sneddon claims that dams are "thick with politics," a phrase coined by Wiebe Bijker to describe the social and political relations embedded within massive hydraulic structures.<sup>12</sup> Unpacking these various layers, which cut across international politics as much as ecology does, Sneddon demonstrates the often tense but accommodating interplay between technical knowledge and American geopolitical aims. Through encounters between the engineers of the U.S. Bureau of Reclamation (the Bureau hereafter) and operatives within the U.S. State Department, American hegemony expands as the concrete revolution begins to solidify, resist, and transform the river basins of the developing world.

The first chapter of Sneddon's book brings together theories and insights from political geography, political ecology and STS. Sneddon raises two main themes: the first is the intertwined nature of "geopolitics, technologies, and large-scale environmental transformations," and the second is how the idea of the river basin became an important site in the ongoing conquest and control of nature by developing countries.<sup>13</sup> His account is mainly centered on the activities of Bureau engineers and how their technical knowledge transforms into techno-politics. This process is materially constituted in the spread of large dams as hybrid agents, or what Sneddon prefers to call "dam assemblage[s]." He first defines

<sup>8</sup> See the articles in *Millennium: Journal of International Studies* 41, no. 3 (2013).

<sup>9</sup> Maximilian Mayer and Michele Acuto, "The Global Governance of Large Technical Systems," *Millennium: Journal of International Studies* 43, no. 2 (2015): 664.

<sup>10</sup> Barry, "The Translation Zone," 424.

<sup>11</sup> Christopher J. Sneddon, *The Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation* (Chicago: University of Chicago Press, 2015).

<sup>12</sup> Sneddon, *The Concrete Revolution*, 2.

<sup>13</sup> Sneddon, *The Concrete Revolution*, 4.

*assemblage* as a “collection of things, places, and processes brought together by a central idea or material entity.”<sup>14</sup> *Dam assemblages*, then, specify the overlapping and interpenetrating layers of technical expertise and geopolitics, in conjunction with the built environment of the river basin.<sup>15</sup> Yet as concrete and sediment begin to pour into rivers, so does a series of unintended results flow in turn; events and actions that ANT scholars would identify as the agency of nature. Abstracting from each of these layers—the local from the global, and vice-versa—shows just how interdependent these relations are, and why a dam is never just a dam, but a material as well as a political reality. The rest of *Concrete Revolution* is divided into several chapters, each dealing with the major projects undertaken globally by the Bureau.

President Theodore Roosevelt established the Bureau in 1902 as the country’s foremost authority on water resource development and management. Its initial aims were to support agriculture for settler farmers as they began to penetrate deeper into the arid states of the American West. The book’s second chapter takes the reader into the internationalization of the Bureau and its activities, particularly highlighting the exploits of one of its most skilled engineers, John L. Savage. As the Bureau’s top design engineer, Savage’s talents significantly shaped the hydrology of the American West in addition to aiding the efforts to dam rivers in Chiang Kai-shek’s China. Savage was but one of many engineers whose achievements the U.S. would deploy as an exportable point of pride to lesser-developed nations. Despite the global accolades these projects would give the Bureau, the organization’s authority outside the U.S. would often falter under the overarching political and economic sensitivities of the international order.

The Chinese nationalist regime commissioned the Bureau and Savage to conduct feasibility reports for a dam in the Yangtze Gorges in Central China in the 1940s. The main purposes of the dam would have been to provide irrigation and flood control.<sup>16</sup>

However, Savage’s team quickly found itself at loggerheads with the U.S. State Department, revealing how much the scale and proposed capacity of the dam would be scrutinized under the rubric of U.S. foreign policy. State Department officials were concerned that the Bureau’s initial project design was so immense and capital intensive that then-present levels of Chinese industrialization would be unable to absorb the proposed capacity.<sup>17</sup> Moreover, the exorbitant cost of the project, which amounted to billions of dollars, as well as the growing instability between the Nationalist government and the Maoist insurgency, cast doubt that the project would ever be completed. Allies of the Bureau argued that such a project would provide ample opportunities for American firms to supply the necessary technical equipment, and that the cost would not incur too great of a burden.<sup>18</sup>

In the end, the project was partially realized, and then abandoned.<sup>19</sup> Sneddon argues that the different levels of conflict are illustrative of how the confrontation between technical arguments from Savage and his allies in both the Department of the Interior and the U.S. Bureau of Reclamation must be seen in the context of American hegemony. The core of these discussions was fraught with the U.S. organizations’ “imagined geographies” of the Yangtze Valley, as Sneddon puts it, the land and river being implicated on a variety of politicized

<sup>14</sup> Sneddon, *The Concrete Revolution*, 7.

<sup>15</sup> Sneddon, *The Concrete Revolution*, 7.

<sup>16</sup> Sneddon, *The Concrete Revolution*, 44.

<sup>17</sup> Sneddon, *The Concrete Revolution*, 42.

<sup>18</sup> Sneddon, *The Concrete Revolution*, 43.

<sup>19</sup> Since then, however, the dam has been built, starting in 1994 and with the final turbine installed in 2012.

scales.<sup>20</sup> For Savage and the Bureau, the underdeveloped nature of China's economy was ripe for the Yangtze Dam. As Sneddon points out, however, both the Bureau and Savage failed to factor in the problems of the country's enormous political instability.<sup>21</sup> Thus, internationalist ambitions of spreading American technical know-how was bound up in the geopolitical modifications and concerns of the U.S. State Department, which sought to strategically preserve American interests in China.

The third chapter of *Concrete Revolution* discusses the development of the Litani River basin in Lebanon throughout the 1950s, and how it was transformed into a site of contentious politics. Similar to the problems between Savage and the State Department, in Lebanon, the U.S. government, the Bureau and the State Department clashed over how the Litani river basin would be used. The announcement of a TVA-style<sup>22</sup> plan for the Litani basin came on the heels of U.S. President Harry S. Truman's "Point Four Program," which provided financial assistance to countries deemed politically susceptible to a communist agenda.<sup>23</sup> Lebanese water resources were thus targeted as the focus of a U.S. foreign policy agenda to combat Soviet influence in the Middle East. Throughout its planning and construction phases, the Litani program encountered numerous material and strategic revisions. There were three primary elements that unexpectedly disrupted the intended plans of the engineers and the U.S. At the regional level, the so-called "Johnston Plan," supported by the Eisenhower administration, sought to conjoin the riparian states of the Jordan and Litani Rivers as a way to shape the destinies of Israeli and Lebanese water resource management.<sup>24</sup> By linking the Litani basin to the needs of the Israeli state, it was assumed that the latter would enjoy a more politically stable relationship with a neighboring Arab state, which turned out to be too optimistic. A second aspect was the somewhat high-handed attitude of the Bureau engineers in their assumptions while assessing the social and economic needs of the Lebanese people. This naturally caused some tension, and was only exacerbated as engineering failures came to light with the contentious Bisri Tunnels. Finally, a combination of poor feasibility planning and disagreeable geological factors colluded to convert unplanned disasters into advantageous political opportunities to redirect the course of water supplies from its anticipated recipients in South Lebanon to the residents of Beirut.<sup>25</sup> This trifecta of challenges—the geological, the regional, and the overarching American focus of staving off the spread of Stalinism in the Middle East—ultimately led to the collapse of a viable TVA-style program for Lebanon. In its wake, Sneddon remarks that despite its failure, the concept of multi-purpose river basin development as a technical model became even more notable to developing countries as "mandatory elements of a universalized approach to the exploitation of water resources."<sup>26</sup>

In his fourth chapter, Sneddon lays out the dynamics of the Blue Nile program, located in the central highlands of Ethiopia. Under President Eisenhower's administration, a more market-based approach to American foreign aid was introduced to alleviate government

<sup>20</sup> Sneddon, *The Concrete Revolution*, 49.

<sup>21</sup> Sneddon, *The Concrete Revolution*, 49.

<sup>22</sup> *TVA-style* refers to the organization and functions of the Tennessee Valley Authority, a federally owned corporation in the U.S. created by congressional charter in May 1933 to provide navigation, flood control, electricity generation, fertilizer manufacturing, and economic development to the Tennessee Valley, which was severely affected by the Great Depression. The TVA was designed not only as a corporation, but also as a regional economic development agency that would use federal experts and electricity to rapidly modernize the region's economy and society.

<sup>23</sup> Sneddon, *The Concrete Revolution*, 68.

<sup>24</sup> Sneddon, *The Concrete Revolution*, 67-8.

<sup>25</sup> Sneddon, *The Concrete Revolution*, 54.

<sup>26</sup> Sneddon, *The Concrete Revolution*, 74.

spending. As the enthusiasm towards foreign aid as procured by the state began to wane, the Bureau began to struggle with keeping its program relevant. Bureau Commissioner Floyd Dominy would attempt to preserve the Bureau's foreign activities by arguing that its missions abroad would provide ample opportunities for American corporations to offer their services and products to a growing list of markets. Banking on the combined experience and expertise offered by the Bureau, it was hoped that the organization would continue to stay relevant to U.S. foreign aims by setting up water resource management programs in host countries.<sup>27</sup>

In the 1950s, in Ethiopia, as in Lebanon, major development projects, especially imposing ones like dams, were symbols of industrial might that would translate into significant political clout. Americans well understood the advantages of building Ethiopia's hydrological infrastructure and its overall strategic importance because of the latter's access to both the Middle East and the Indian Ocean. Ethiopia's location on the Horn of Africa, an important commercial route, dovetailed with the fact that any project tapping into the Nile River's capabilities could serve as leverage to Nasserite Egypt. Bureau engineers entered Ethiopia in 1952 to assess the hydrology of the Awash river basin and started working on the Blue Nile program. Yet their mission was repeatedly interrupted by actors both human and non-human. The persistent threat of malarial outbreaks in the region, disagreeable weather conditions, as well as tribes hostile to the government conspired to delay progress. Further, the unwillingness of Ethiopian authorities to share previous hydrological studies conducted by the Italians stalled an already slow-moving venture. By the end, the project seemed to be in a constant state of becoming, or unbecoming, as it were. What persisted, however, was a "technopolitical network" into the country that continued to promote efforts to encourage river basin planning, which endure today.

In the last empirical chapter, Sneddon turns his attention on the "greatest dam never built"—the Pa Mong Dam in Thailand. Arguably the most detailed of the case studies, the "Mekong project" involved not just dams and attendant substations, but nearly most developed aspects of river basin planning, including "irrigation works, advanced agricultural production, [and] agro-industrial development."<sup>28</sup> When planning started in the 1960s, it was clear that an American foothold in Southeast Asia would require a major project in order to secure the former's presence, and so the political priorities of the project came first, with technical considerations often second. Sneddon argues that by the mid-1960s, "the technical work and water resource expertise...became so deeply intertwined with the Pa Mong dam's geopolitical origins and ends that the technopolitical project gained momentum that was partially, if not wholly, divorced from its technological and economic feasibility."<sup>29</sup> One aspect that was somewhat different from the rest of the Bureau's projects was U.S. President Lyndon Baines Johnson's insistence that the Mekong project would bring peace to the region as an "alternative strategy"<sup>30</sup> to military involvement. However, under Johnson, enthusiasm for foreign aid and development was waning in policy circles and certain academic groups, as well as in the nascent environmentalist movement. In addition to the above factors, the high cost of maintaining multiple project sites and feasibility reports, and persistent fighting between the State Department and Bureau engineers eventually sunk the project. The Bureau

<sup>27</sup> Sneddon, *The Concrete Revolution*, 79-80

<sup>28</sup> Sneddon, *The Concrete Revolution*, 105.

<sup>29</sup> Sneddon, *The Concrete Revolution*, 111.

<sup>30</sup> Sneddon, *The Concrete Revolution*, 115.



increasingly adopted a political line, couched in technical terms, to support U.S. strategic aims as well as provide an open door for American business opportunities to continue in the region. Yet in spite of the project's overall failure, what American involvement did leave behind was an ingrained sense of the Mekong as one of many "working rivers" and its potential for development today.<sup>31</sup>

In Chapter Six, Sneddon welcomes the arguably more critical scholarship about and perspectives on dams that has recently emerged, particularly around the ecological threat they pose. Yet he also criticizes such works because they point fingers only at the dams, fetishizing their structures while leaving the kinds of technopolitical networks that nurture them untouched. Dams, for Sneddon, are the material glue that contain the above networks, which hum through their concrete foundation. Sneddon revisits those early projects—on the Litani, the Blue Nile, the Mekong—from the golden age of the Cold War, and notes that many parts of them are still regarded with fascination by the engineers of today. Newer actors are now involved in dam creation, such as Iran in Lebanon or China in Vietnam and the rest of Southeast Asia, and dams continue to be built; methods in marketing have rebranded "hydropower" as clean alternative to dirty fossil fuels.<sup>32</sup> Billed as part of the current preoccupation with green energy, much of the old-new spin on dams conveniently leaves out any reference to the effects dams have on their surrounding regions (displacement, pollution, climate change)—although some ecological consciousness does seem to resonate among their new proponents.<sup>33</sup>

Lastly, Sneddon introduces his conclusion. There are two general points he insists on: first, that the formation of technical expertise helped foster and became a part of American geopolitical aims in the developing world, and second, that river basin development has begun to be seen as a homogenous model, which could be implemented any time, anywhere in the world. Technopolitical networks have helped sustain the effort of damming the planet's river basin systems, yet in the process also have produced an enormous amount of "friction"—which happens when models or generalized experiences from a given context encounter resistance from local arrangements and conditions.<sup>34</sup> In this regard, Sneddon's work will remain an invaluable resource for understanding the how and why of globalized development projects such as financing and building of large dams.

Literature on large dams is generally not a major focus in ANT literature. Irrigation, on the other hand, is much debated, especially in relation to colonial projects. Sara Pritchard's seminal work on French-occupied Algeria sheds light on how hydrologists and engineers reclaimed arable lands in North Africa, developing important techniques and insight from their engagement with the land and people. This method puts into question the typical metropole-to-colony transmission of knowledge and politics that is characteristic of works on colonialism or imperialism. Creole engineers often brought back new methods of irrigation to Paris, thereby becoming an important source of knowledge.<sup>35</sup> John Broich likewise looks at how the process of translating Victorian-era irrigation designs from England to India ultimately backfired, creating local resistance that could neither see the relevance nor benefit

<sup>31</sup> Sneddon, *The Concrete Revolution*, 122.

<sup>32</sup> Sneddon, *The Concrete Revolution*, 133.

<sup>33</sup> Sneddon, *The Concrete Revolution*, 134-35.

<sup>34</sup> Sneddon, *The Concrete Revolution*, 154.

<sup>35</sup> Sara B. Pritchard, "From hydroimperialism to hydrocapitalism: 'French hydraulics in France, North Africa, and beyond,'" *Social Studies of Science* 42, no. 4 (2012): 591-615.

of “Western” hydrology.<sup>36</sup> Sneddon introduces the ways in which these encounters fuse and mesh to become political networks, whether or not such projects like dams or other irrigation schemes actually materialize. In doing so, he allows us to see not just how dams become “actors” but how technology and concerns with spreading technical knowledge undergird and highlight actors that would otherwise not be visible.

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<sup>36</sup> John Broich, “Engineering the Empire: British Water Supply Systems and Colonial Societies, 1850-1900,” *Journal of British Studies* 46, no. 2 (2007): 346-65.