Global Environmental Change 38 (2016) 205–216

Contents lists available at ScienceDirect

Global Environmental Change

journal homepage: www.elsevier.com/locate/gloenvcha

Institutional change and the political economy of water megaprojects: China's south-north water transfer

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ARTICLE INFO

Article history:
Received 31 August 2015
Received in revised form 31 March 2016
Accepted 31 March 2016
Available online 12 April 2016

Keywords:
Interbasin water transfer
Political economy
Institutional change
Megaproject
Water politics
China

ABSTRACT

This paper analyses the relationship between megaproject construction and change in water management institutions. Due to the wide geographical distribution of their costs and benefits, which often spans national and provincial borders, water supply megaprojects frequently prompt intentional or evolutionary institutional change. China's South-North Water Transfer Project (Middle Route), the world's largest interbasin transfer project, was completed in December 2014 and is now in operation. Based on extensive fieldwork and analysis of Chinese documents, this paper introduces the government actors involved in, and impacted by, the planning and construction of the project. By detailing the interests of these actors, and the way those interests have been affected by the political, economic and environmental changes wrought by the megaproject, it shows that the Middle Route project has already contributed to change in one major financial institution – water pricing – and is exerting pressure on at least two others—infrastructure financing and compensation. Despite the regulatory efforts of the Chinese central government, incomplete institutional change processes threaten the long-term viability of the megaproject. Megaprojects demand institutional change and this must be factored into policymaking processes; business as usual will not suffice if the real benefits of the South-North Water Transfer are to be fairly distributed and its negative social, economic and environmental effects mitigated and appropriately compensated.

1. Introduction

Water infrastructure projects are being planned and built at ever-larger scales. These water megaprojects are pursued predominantly by governments of emerging economies (Flyvbjerg, 2014). Advanced technological capabilities, new sources of finance, and brazen political ambition are combining to fuel a perception in emerging markets that some of the world's biggest problems demand equally 'mega' solutions.

Flyvbjerg (2014, p. 6) defines megaprojects as "large-scale, complex ventures that typically cost US$1 billion or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people". One category of water megaproject – the interbasin transfer – is, by definition, transformational in its impacts on existing water allocation regimes. By re-apportioning the economic, social and ecological costs and benefits associated with regimes of water use, interbasin transfer projects engender new political and economic realities. This paper analyses the degree to which the creation of new regimes by water megaprojects requires corresponding changes to institutions of water governance, by assessing the most 'mega' water supply infrastructure project the world has ever seen: China's South-North Water Transfer (SNWT). Alterations to hydrology and politics in northern China brought about by the completion and operation of the SNWT are now demanding institutional change, and a recognition in policy- and decision-making processes of the need for such change.

Assessment of the extent to which institutional change processes are keeping up with the rapid rate of water megaproject construction in twenty-first century developing economies will require close collaboration between water governance experts and country specialists. Much of the existing literature on institutional change processes has been generated by close observation of democratic policymaking in Western nations; there is an urgent need for the development of an evidence base applicable to the non-democratic non-Western nations that will define the next generation of water governance institution-building. This paper makes an early contribution to this important new field of research by bringing theories of Chinese policymaking into conversation with the broader literature on institutional change and the political economy of water infrastructure development.

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http://dx.doi.org/10.1016/j.gloenvcha.2016.03.015
0959-3780/

Section 2 introduces the SNWT megaproject and provides a brief history of its development. Section 3 situates this paper's contribution within the existing literature on institutional change processes and the political economy of water infrastructure projects. Section 4 describes the methodology. Section 5 maps major government stakeholders in the construction and operation of the SNWT. Section 6 describes how the completion and financial management of the SNWT affects stakeholder interests. This section also examines the extent to which existing institutions of financial management have adapted to serve the purposes of the project, or been challenged by its social, economic, political and hydrological effects. Section 7 discusses the findings of the previous sections in light of the established theory. Section 8 concludes.

2. The south-north water transfer project: a primer

The SNWT is the largest and most expensive interbasin water transfer megaproject ever built (Kuo, 2014). In fact, it is three megaprojects, woven together in a vast lattice of rivers and canals. Planners use the phrase "four horizontals and three verticals" (四横三纵) to describe the SNWT's layout: the Eastern, Middle, and Western routes run north (i.e. vertically) from the Yangtze river basin, connecting the Yangtze, Huai, Yellow and Hai rivers, which flow west to east (i.e. horizontally) (Ministry of Water Resources (MWR), 2002, p. 30).

The official history of the SNWT begins in 1952, when Chairman Mao Zedong remarked, "the South has plenty of water but the North does not have much; we should borrow a little" (Yi, 2014, p. 25). It was not until 1999, however, that the Planning, Design and Management Bureau of the SNWT was established within the Ministry of Water Resources (MWR) and the project's construction was assured (Chinese Government Public Information Online, 2015). Three years later, this Bureau completed the *South-North Water Transfer Project Masterplan* (南水北调工程总体规划), and construction commenced in December 2002 (Xia et al., 2002). According to the *Masterplan*, the three routes of the SNWT would provide up to 45 billion cubic metres (BCM) of freshwater to nearly 100 cities north of the Yangtze basin by 2030, boost domestic consumption, and create hundreds of thousands of jobs (Ministry of Water Resources (MWR), 2002). In 2013, the Eastern Route (SNWT-ER) was completed.

In December 2014, six years behind schedule, the Middle Route (SNWT-MR) (see Fig. 1 and Table 1) formally commenced Phase I operations, with a planned average capacity of 9.50 BCM per annum (Yang and Yao, 2014). While the Eastern Route is a valuable case study for various institutional and governance issues (Chen et al., 2013), this paper focuses mostly on the more expensive and impactful Middle Route. The Western Route is not expected to be complete until 2050.

3. Institutional change and the political economy of water megaprojects

Institutions are "systems of established and prevalent social rules that structure social interactions" (Hodgson, 2006, 2). The institutions dealt with here are mostly regulations, standards and procedures set down and enforced by governments for the purpose of structuring specific formal interactions (e.g. rules for buying and selling water). Institutions are always defined, negotiated and contested by actors or groups of actors: they "depend for their existence on individuals, their interactions, and particular shared patterns of thought" (Hodgson, 2006, p. 7). Because of this, they are not static but dynamic; they are amalgams of structural factors and the effects of actor agency (Hodgson, 2004). Institutions often outlive individuals who shape their development, but they are always transformed, directly or indirectly, by individual actions.

The main objective of this paper is to understand how and why institutions of water governance change. Historically, institutional analysts have tended to focus on abrupt transformations brought

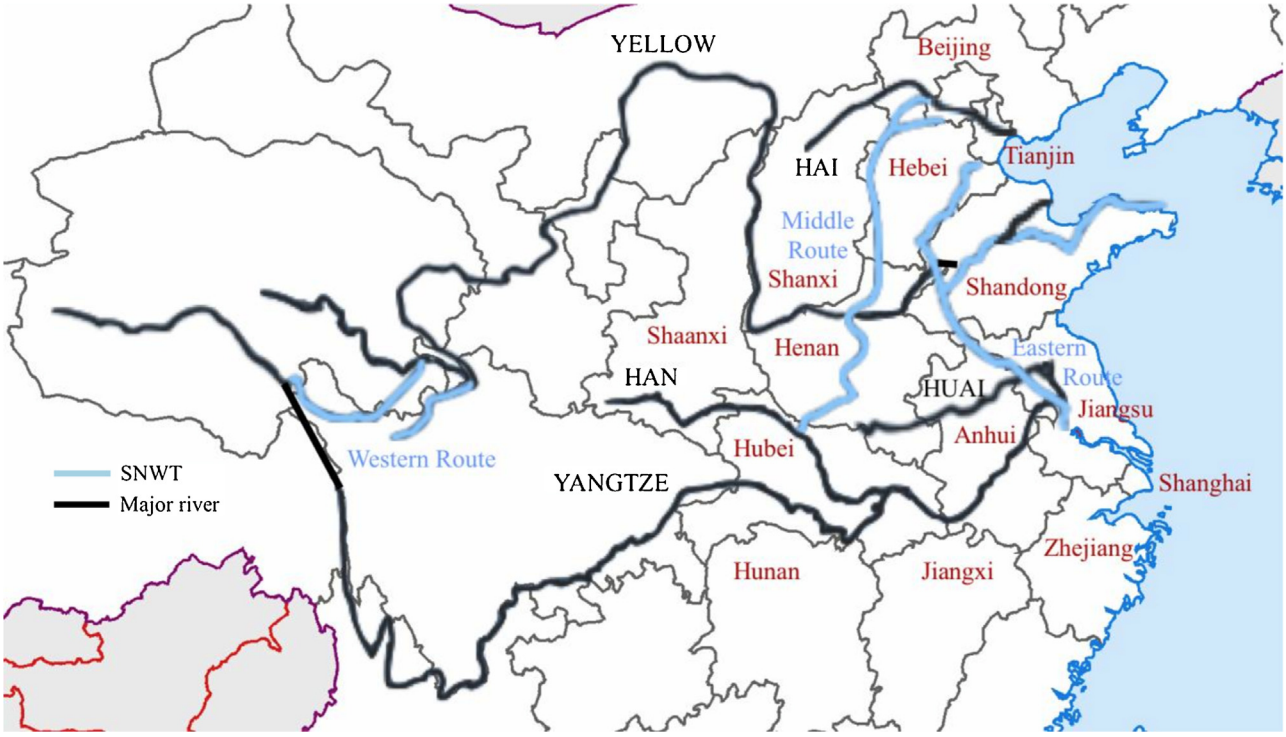

Fig. 1. South-North Water Transfer in political and physical context.

Source: Author's work.