

Two-page outline

Small Hydropower and Region Formation in Jinhua County, Zhejiang, 1950s-1970s

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The paper, as currently envisioned, consists of three substantive parts, with the third part being the most substantive.

Part I—Introduction, context, stakes

- The Question: How do we understand the role of hydraulic infrastructure—here small hydropower—in region formation? In other words, does a collection of small hydropower dams/stations make a region or, conversely, does an (administrative, political, geographic or economic) region define the hydropower that get built within it? To what extent to the hydro-geographical features, such as the basin or the watershed, matter?
- On the larger question of region formation and water bodies (such as river basins), consensus remains elusive. For instance, some scholars working on hydraulic histories have proposed territorialization and region formation as a central way to analyze such changes. For instance, Timothy Sneddon (2015) has proposed the river basin as the ideal unit through which to understand “a host of interrelated water development and management activities” in the United States. He has also written about American attempts to export such a river basin-based model of hydraulic development abroad in the early twentieth century. Chanda Mukherji (2009), in her history of the seventeenth century Canal du Midi, has explored region formation and territorialization as outcomes of hydraulic engineering. Others, such as Francois Molle (2007), have discussed the need to balance economic/developmental imperatives that incentivize closing river basins and systems with the sustainability of ecosystems typically predicated on openness.
- In socialist China, territorialization has thus far been approached largely using economic rationales, where increased emphasis on self-reliance (more on which below) led to the creation of essentially self-sufficient commune-level units by the 1970s, a phenomenon the economist Audrey Donnithorne dubbed the “cellular economy”. By looking at the density of self-sufficient county grids, we may yet arrive at a different spatial understanding of socialist China, one that sits between the county and the commune.
- Against this background, this paper explores region formation in the context of expanding small hydropower, focusing on the county of Jinhua in Zhejiang province from the 1950s to the 1970s.

Part II—Jinhua: The site and its significance

- A brief section on the story of small hydropower expansion in the PRC (drawing upon work I have already done).

- Jinhua's place in that expansion, as a model county for small hydropower. (including a short discussion of Jinhua's place in longer duree Chinese history, following works by Bol, Yeh, etc.)

Part III—Small Hydropower at Jinhua

- This part will draw upon gazetteers and archival documents from Jinhua to reconstruct the expansion of small hydropower in the county, exploring the following aspects:
 - Brief narrative of hydropower stations and their expansion
 - Planning—the construction of individual projects and their relationship to questions of hydrology and water management.
 - Scale—how did scale of station (micro, mini, small) affect other considerations, including hierarchies of stream and watersheds? Particularly useful will be, I think, the reflections of Zhu Xiaozhang, the first director of the Hangzhou Research Center on Small Hydropower, who explored in his writings (one example listed below) the tension between the existence of several poorly built and run small stations (<500kW) and the relative efficiency and economies of scale of somewhat larger (~1-5 MW) interlinked stations. The latter were more stable (wending) in ensuring consistent supply and water control.
 - Networking—Directly drawing upon previous discussion, the next section will explore the linking of stations over time, with what implications for:
 - Electricity Grids
 - Administration
 - Hydrology, water cycle, aquatic ecosystems, etc.
 - Socio-political and cultural life (including water use)

Part IV—Concluding Thoughts/Summary

- The place of the small and “intermediate” in hydraulic governance and region formation.

Preliminary Working Bibliography:

Archival: Jinhua County Archives
 Jinhua County Gazetteer
 UN Archives

Published:

- Audrey Donnithorne, “China’s Cellular Economy: Some Economic Trends since the Cultural Revolution,” *The China Quarterly*, no. 52, 1972, 605–19.
- François Molle, “River Basin Management and Development”, in *International Encyclopedia of Geography: People, the Earth, Environment and Technology*, 1-12. John Wiley, 2016.

- Chanda Mukerji, *Impossible Engineering: Technology and Territoriality on the Canal du Midi* (Princeton, 2009).
- Christopher Sneddon, *Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation* (Chicago, 2015).
- Zhu Xiaozhang 朱效章. (1981). “从国外小水电的发展情况看我国的小水电.” 《水利水电技术》, (08), 45-49.