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Political-economy based institutional industry complex and sustainable development: The case of the salt-chemical industry in Huai'an, China



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HIGHLIGHTS

- An enlarged lock-in framework is used to explain pro-growth coalition.
- A pro-growth Institutional Industry Complex (IIC) is established.
- We provide policy and strategies to unlock the chemical industry and foster the anti-coalition.

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ABSTRACT

This article explains how the salt-chemical industry may evolve over time from a high-energy consumption-based industry complex in the local community to a consolidated pro-growth pluralist regime at the urban scale. The salt-chemical industry is resisting to restructure to a sustainable, environmental-friendly economic system by spilling over in the form of pro-growth political-economic coalition in local society. Theories of the Logan and Molotch's growth machine, Stone's urban regime, together with the extension of Unruh's thesis concerning the characteristics of lock-in in the technological or institutional economics approach were used to propose an enlarged lock-in political-economic framework and pro-growth Institutional Industry Complex (IIC). It is further used to explain the consensus building of the pro-growth governance. A study of the Salt-chemical and New Material Industry Park in the Huai'an Metropolitan Area, China, serves as an illustrative case. The article also suggests that the path-dependence followed in constructing a pro-growth coalition could serve as a program to unlock the pro-growth Institutional Industry Complex of salt-chemical industry and foster the anti-coalition needed.

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1. Introduction

Sustainable development has been a somewhat fashionable slogan in massive governmental documents and materials since the late 1990s in China – explained by the PNAS website, as “... meeting the needs of present and future generations while substantially reducing poverty and conserving the planet's life support systems” (Kates, 2011). Ironically, environmental pollution has become a major problem as China undergoes rapid economic development and a process of industrialization-based urbanization. In particular, when residents in the coastal area in China (e.g., from Shanghai to Beijing) suffered from severe smog pollution in

the winter of 2013 (Huang et al., 2014), many primary schools were unprecedentedly shut down for three days.

A major culprit is the salt-chemical industry, considered one of the most polluted sectors and unsustainable industries in China. The industry and its by-products, accompanied by other chemical industry sectors, has caused many environmental hazards – becoming known as an industry of unsustainability (Manahan, 1999). However, not only does the industry continue to survive, but it has boomed in recent decades, as it plays substantial role in the process of industrialization-based urbanization in providing both work opportunities and integration with other industry sectors through its middle and end products (Landau and Rosenberg, 1998).

Considering the double-edged effect of the salt-chemical industry on the benefits to the economy and impact on the

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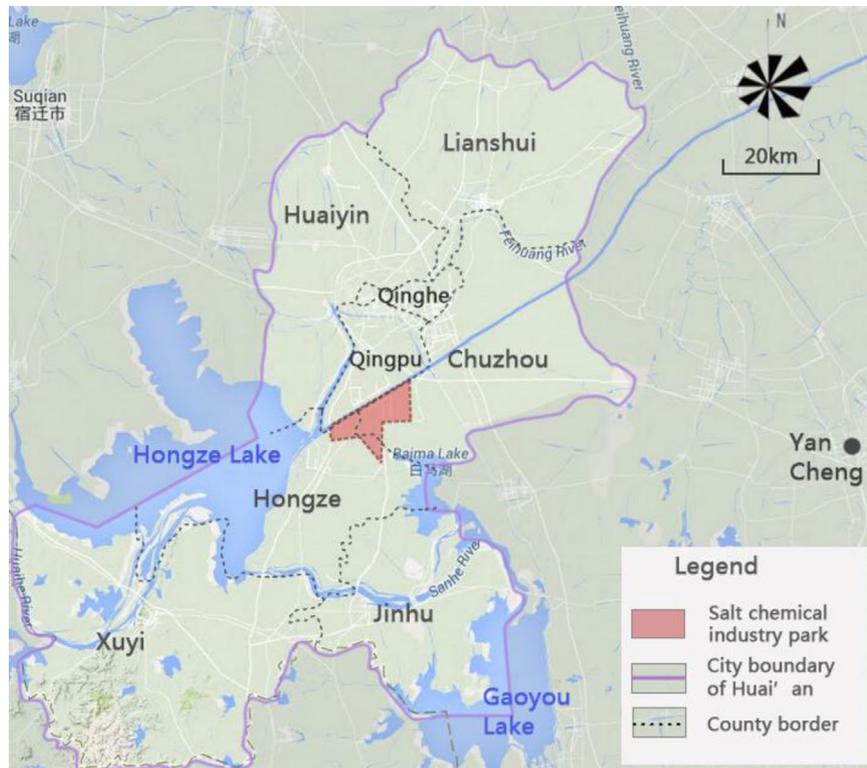


Fig. 1. Location of studied case.

environment, through an angle of political-economy based critique at different scale, this paper examines the case of the Huai'an Salt-chemical and New Material Industry Park,¹ a salt-chemical industry cluster in the Huai'an Metropolitan Area—a prefecture-level city in the central Jiangsu Province of eastern China in the northeast Yangtze Delta (Fig. 1). The unaffordable impact of the Industry Park on the local social–ecological system has emerged since the 1990s, because it has continued to increase in large scale and led a restless geographical expansion. However, on behalf of local government of pro-growth ambition, the salt-chemical industry cluster has a central business role to play in enabling a crushing influence on the multi-scalar state (e.g. a complex from prefecture-level city authority, county-level district government to jiedao government) (Swyngedouw, 2004), as well as on the local residents and local business in the background of China's reform epoch and state-led pro-growth strategy (Zhu, 1999; Zhang, 2002). Then an industry complex was constructed gradually with the production as well as plants. Consequently, Cowan (1990) used nuclear power reactor as an example to reveal how the technology lock-in emerged in such a technology intensive sector through a technological research paradigm. Cowan and Hultén (1996) proposed the possibility of new born sustainable transportation sector of electronic vehicle that emerged from unlocking the predominance of combustion automobile based on technology evolution and market completion. Thus, Unruh (2000, 2002) further developed a conceptual framework through combing technology evolution with Arthur's (1989) increasing returns in institutional economy approach. In line with these, the carbon lock-in theory and industry-technology complex (ITC) offered an appropriate vehicle for interpreting similar phenomenon in technological or institutional economics approaches at local scale. However, a fuller account can be obtained by integrating this techno-economic

approach with Logan and Molotch (2007) politico-economic growth machine thesis on local scale and Stone's (1993) pluralist regime theory on urban scale within an Wu et al.'s (2015b) institutional industry complex (IIC) framework. In this context, this paper intends to seek for an inclusive research paradigm rather than simply replace traditional technological-economic approach of lock-in theory to reveal the pro-growth complex in a complex and multi-scale setting; then further unfold the complexity of pro-growth coalition of (un)sustainable development.

The paper is organized as follows. Section 2 provides a brief overview of the literature concerning salt-chemical industry lock-in in pro-growth coalition building within both the Growth Machine thesis and Urban Regime theory. This is followed by method selection in Section 3 and a review of the historical development of the salt-chemical industry both in China and in Huai'an in Section 4. Section 5 argues for the relevance of the pro-growth regime and its lock-in theory for the salt-chemical industry, while Section 6 provides general conclusions and discussion on unlocking the lock-in and decommissioning the pro-growth regime.

2. Understanding salt-chemical industry from a political economics perspective

The salt-chemical industry is one of the most important chemical industries and broadly connects with other sectors or industries throughout its primary middle products. It also easily influences our daily lives with its massive final products. In fact, the salt-chemical industry sector is broadly involved in utilizing salt or bittern, which is used to process many primary chemical products, such as sodium chlorate, sodium carbonate and hydrochloric acid for the weaving, electronic and medical industries. It is therefore a technologically intensive, high added value sector. Developing the salt-chemical industry has therefore been regarded for a relatively long time as a pivotal goal of local business and government in mine-rich areas on the verge of

¹ For the sake of brevity, the Huai'an Salt-chemical and New Material Industry Park is abbreviated to 'Industry Park' in the remainder of the paper.

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