INFRASTRUCTURE AND COUNTER-INFRASTRUCTURE: SPATIAL MODERNITY, CULTURAL NARRATIVES, AND VISUAL AESTHETICS IN CHINA, 1949 - CONTEMPORARY

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Infrastructure and Counter-infrastructure: Spatial Modernity, Cultural Narratives, and Visual Aesthetics in China, 1949 - contemporary

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CERTIFICATE OF ORIGINALITY

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ABSTRACT

This dissertation explores the concept, practice, and discourse of infrastructure space in contemporary China through the lenses of spatial modernity, visual culture, and aesthetics. China's infrastructure age, if there is one, demonstrates how the power of infrastructure is reshaping socialist China's spatial modernity and global influence through spectacular transformations, impacts, and controversies. This is evident in multifaceted infrastructural forms such as high-speed railways, dams, new zones, land reclamation, big data centers, and radio telescopes, among others. Material infrastructures in China not only shape national modernity through industrialization and urbanization but also embody dynamics of historical legacy and cultural experiences in their representations, symbolic meanings, and visual aesthetics. From the basic capital construction in Mao's China since 1949, through the Open Door Policy for rapid urbanization, to the Belt and Road Initiative in the 2000s, China's modern development through infrastructural push has become a central topic in scholarly work. However, how infrastructure space fabricates, mediates, and complicates contemporary China's cultural identity behind national power and spatial modernity remains understudied and demands further questioning.

This research investigates the infrastructure landscape of contemporary China from a "counter-infrastructure" perspective. This concept serves as a counterpoint to the progressive, linear, and nationalistic narratives surrounding infrastructure development in socialist China, focusing on suspensions, deconstructions, demolitions, and unrealized speculations. In contrast to the dominant narratives of Chinese infrastructural progress, counter-infrastructure perspectives reveal an unspoken cultural identity within the nation's infrastructure space. By exploring the subjectivity of infrastructural memory across urban and rural areas, and "infrastructurescapes" across islands and karst landforms, and the aesthetics of ruins and future possibilities through contemporary art and science fiction, this research argues that infrastructure is not merely a mechanism for achieving national spatial modernity, representing top-down desires, grand narratives, and ideologically imposed state discourses. More importantly, it embodies individual affective experiences and spatial memories that can challenge, erode, and redefine these desires, imaginaries, and narratives.

Acknowledgement

I would like to express my sincere gratitude to my supervisor, Dr. Pan Lu, for her invaluable insights and consistent guidance throughout the dissertation writing process. Her expertise has been instrumental in shaping the research topic of my project, providing crucial structural suggestions and thoughtful comments. Furthermore, Dr. Pan has been exceptionally supportive of my participation in workshops, academic conferences, and study trips, which have significantly broadened my perspective for my doctoral journey and beyond—fostering passion and inspiration for life in temporality and spatial imaginaries.

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Last but not least, I'm fortunate to have a lovely and caring cohort with whom I've spent three years on this doctoral research journey, academically and beyond. I will always cherish these wonderful memories. Equally important, with my family's love and support, I can go further on my life journey—"be brave, be curious, and be determined."

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Introduction: China's Infrastructure Age and Counter-Infrastructure

On October 7, 2023, Xinhua News, China's largest official news agency, published a short video (23'17") titled "Satellite News: Viewing 'The Belt and Road Initiative' from Space." The opening voice-over declares: "This is a great practice engraved on this blue planet, involving more than 150 countries and over 30 international organizations, covering nearly two-thirds of the world's population" (Figure 1). Through a sequence of zoom-ins and zoom-outs, a series of satellite images taken from space showcases the visual transformations of multiple mega-infrastructure projects. These new infrastructure projects ("New Ports, New Energy, New City, and New Road") are part of the Belt and Road Initiative (BRI), launched in 2013 and funded by the Chinese state in collaboration with partner countries across Asia, Europe, and Africa [*yidaiyilu* 一带一路 2013–2049, including Silk Road Economic Belt and 21st Century Maritime Silk Road]:

> "New ports" include Piraeus Harbour of Athens, which is the largest port in both the Mediterranean Sea and Europe, and the Colombo port city land reclamation project in Sri Lanka; "New Energy" such as photovoltaic and photothermal power stations in Kazakhstan, wind-power projects in Bangladesh, and power plants in Java, Indonesia; "New City" of the urban construction for Egypt's New Administrative Capital; and "New Road" for Thailand's durian transmitted through the China-Laos railway for South Asian tropical fruit supply chain and logistics…[1]

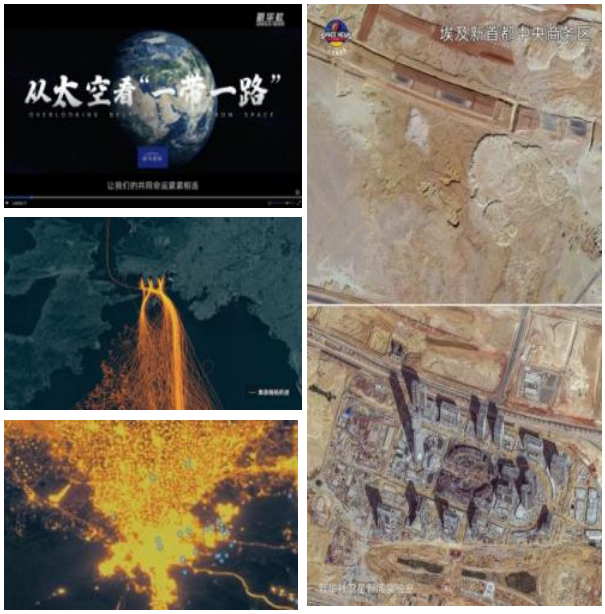

Figure 1: Screen shots of the video "Viewing 'The Belt and Road Initiative' from Space" (*Source* Courtesy of Xinhua News, at http://www.news.cn/world/2023-10/27/c_1129943142.htm)

Amid these stunning panoramic visual narratives, what "new perspectives" of looking from space tell stories of the Belt and Road Initiative's (BRI) ten-year development and achievements as China's global infrastructure project? First, it addresses the "new" changes and impacts on BRI nations and regions through spatial transformations and configurations, showcasing China as an emerging globalization power with its advanced technology standards applied in BRI

[1] According to Xinhua News 新华社, "Satellite News: Viewing 'The Belt and Road Initiative'" 卫星新闻: 从太空看"一带一路", October 27, 2023. Accessed May 12, 2024. http://www.news.cn/world/2023-10/27/c_1129943142.htm

infrastructure projects. Second, the satellite images perhaps omit the emerging disputes and controversies that accompany BRI's latent influences, such as environmental issues, labor concerns, debt problems, and criticisms of "new economic imperialism."[2] Lastly, viewed from space, the BRI attempts to tell a "new planetary story" of "China speed" and national power in global infrastructure development.

The official concept of infrastructure, as narrated and illustrated in the Xinhua News video, is described as "the circulation and distribution of people, capital, technology, and knowledge" through BRI's infrastructural forms such as bridges, roads, railways, ports, pipes, and airports. The material infrastructures aim to bridge "cultures, civilizations, social systems, and differences in developmental stages," validating a common promising future through green energy for domestic power demands and sustainable development of collaborative nations and regions. Thus, in the context of the Belt and Road Initiative, infrastructure not only facilitates the dissemination and expansion of China's infrastructural model but also reshapes China's national identity through the promotion of technological advancements and the cultivation of shared narratives about a global future. To craft a planetary visual narrative, satellite imagery's top-down perspective plays a crucial role in the spatial scaling approach of the BRI's infrastructural landscape. This non-human perspective from above reveals a quaternary infrastructure space encompassing "land, sea, sky, and network." Meanwhile, the Belt and Road Initiative's infrastructural ambitions are visible in the digital landscape on Earth's surface from space, representing humanity's largest observable energy infrastructure network. Satellite imagery captures the spread of nighttime illumination—a direct result of increased human activity and urban growth—which demonstrates both the aspirations and concrete achievements of BRI's infrastructure development.

On the flip side, in early 2024, China's domestic official policy revealed an uncertain infrastructural reality: the central government ordered a halt to most ongoing large-scale infrastructure projects in 12 provinces, primarily due to issues of significant local government debts. These infrastructure projects include expressways, metros, subways, government buildings, and industrial parks.[3] The temporary halt and deferment of domestic infrastructure initiatives provide further insight into speculations, complexities, and local perspectives. Concurrently, infrastructure discourse has become central in both official propaganda and contemporary Chinese narratives. This discourse is instrumental in shaping perceptions of China's global influence and evolving national image. In this light, it prompts critical inquiries into the conditions, spatial configurations, visual representations, and viewpoints necessary for comprehending infrastructure within the Chinese context and its global discourse and implications.

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[2] One example of the controversies surrounding China's BRI state investments can be seen in Malaysia: Tan Xue Ying, "China Construction tycoon sets up base here amid project controversies," The Edge Malaysia, August 21, 2024. Accessed March 12, 2024. https://theedgemalaysia.com/article/china-construction-tycoon-sets-base-here-amid-project-controversies

[3] Document No. 47 is the "Classified Strengthening of Government Investment Project Management Measures (Trial)" 国务院制定的《重点省份分类加强政府投资项目管理办法(试行) formulated by the State Council in January 2024. There are 12 provinces claimed this measure: Tianjing, Inner Mongolia, Liaoning, Jilin, Heilongjiang, Guangxi, Chongqing, Guizhou, Yunnan, Gansu, Qinghai, Ningxia.

As a result, China's "infrastructure age" sheds significant light on the nature, functions, and implications of infrastructure discourse. It reflectively prompts crucial questions about what infrastructure is, what it does, and what it signifies. The concept of infrastructure is multifaceted, offering rich potential for conceptual, theoretical, and empirical explorations. In the late 1990s and early 2000s, an "infrastructure turn" emerged, flourishing into a robust and popular research topic across multiple disciplines. This turn's theoretical foundation stems from the idea that infrastructure is a visible site of social action rather than an invisible backdrop (Star and Ruhleder 1996). The approach of "infrastructural inversion" repositions infrastructure from background to central subject (Bowker 1994). Notably, the "infrastructure turn" is grounded in urban studies, which has pioneered investigations into urban spatial configurations and meanings, exploring modern ideals, temporality, technology, governance, human-nature relations, and socio-material aspects. Addressing neoliberalism and global consumption competition, the concept of "Splintering Urbanism" probes how networked infrastructure mechanisms lead to spatial injustice and fragmented urban experiences. As Graham and Marvin (2001) note, "Infrastructures are the material forms that allow for exchange over space, creating the channels that connect urban places in wider regional, national, and transnational networks."[4] In this lineage, the global "infrastructural turn" continues as a crucial theoretical approach from multiple perspectives. These include viewing infrastructure as an "instrument of economic policy and strategic economic imperative" (Dodson 2017),[5] exploring infrastructural regionalism (Addie, Glass, and Nelles 2019), examining it in historical scholarship (Bridges 2023), and analyzing "infrastructural times and temporalities" (Addie, Glass, and Nelles 2024).

In a wide range, the "infrastructure turn" has developed into a discursive meaning and overarching phenomenon, as seen in concepts like "infrastructures, infrastructuring, and infrastructuralism." These approaches primarily focus on international relations and global politics (Bueger et al. 2023). While these perspectives offer insights into how infrastructures are materially structured for governance, how they exhibit both fragility and agency, and how they transform, organize, and maintain social systems, they may inadvertently limit our understanding of infrastructures to narrow and constrained perspectives. As for theorizing the notion of "infrastructuralism," two journal special issues — *Modern Fiction Studies* (2015) and *symplokē* (2023) — both titled *Infrastructuralism*, have broadly encompassed articles on infrastructure within the humanities. Caroline Levine (2010) posits that infrastructuralism examines the underlying factors of power institutions that organize social life, revealing "incommensurable forms." However, these theoretical efforts in "infrastructuralism" often fail to elucidate the trajectories and complex consequences of infrastructures, further obscuring them as what Edwards (2003) calls "a slippery word."

To be more specific, in light of the "infrastructure turn," the definition of infrastructure is seen as encompassing large-scale technical systems (LTS), formulated through Science, Technology, and Society (STS) studies and Actor-Network Theory (ANT). Infrastructure is also understood as material assemblages

[4] Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria*, 2008, p.5
[5] Jago Dodson. "Making sense of the global infrastructure turn," April 6, 2017. *The Conversation.* Accessed March 12, 2024. https://theconversation.com/making-sense-of-the-global-infrastructure-turn-73853.

and relations (Harvey, Jensen, and Morita 2017), and as ontological experiments for "new worlds" (Bruun and Morita 2015). The concept of infrastructural *beings* aligns with Martin Heidegger's (1953) notion of *gestalt* (enframing), which views nature as a resource shaped by modern technology. This perspective sees infrastructure as a means of world-making, possessing topological qualities (Penelope 2012), serving as abstractions (Ashley, 2017), and embodying aesthetics (Larkin 2015).[6] Basically, Paul Edwards (2003) argues that modernity shapes and reshapes infrastructures through multi-scalar linkages in forces, time, and social organizations.[7] Brian Larkin (2013) primarily defines infrastructures as "built networks that facilitate the flow of goods, people, or ideas and allow for their exchange over space." Thinking of this in this way, while "discussing an infrastructure is a categorical act" (Larkin 2013, 330), it is a receptive concept either as a multifaceted manifestation of modernity or as a network for material forms and immaterial experiences. Regarding the "infrastructure turn," it may succumb to "turn fatigue" (Grusin 2015, ix). Instead, the discussion on infrastructure should consider its subjectivity and relational thinking. This research positions infrastructure analysis as a response to shifting global power dynamics, using it as a contextual backdrop for discourse and construction. In this way, the "infrastructure turn" practically reflects: the needs and demands of developed countries for infrastructural renovation and expansion; developing nations' pursuit of technological advancement; geopolitical tensions over critical infrastructures; and environmental concerns for sustainable development. In China, infrastructure space is thoughtfully positioned within this academic and potential assessments, configurations, and constructions.

More importantly, it illuminates potentials and empirical experiences, viewing world-making through an infrastructure lens amid the tensions and dynamics, limitations and possibilities, vast and intimate, reality and fantasy, longing and lingering. Put more precisely, from the viewpoint of contemporary China and its vast territory, this research concerns the nonlinear historical reflections on geological and built environments in modern China's infrastructure discourse. The infrastructure development is entangled and overlapping, such as in socialist ideology-imposed narratives on natural landscapes in both physical transformation and metaphorical meaning of "mountains and rivers" (*shanhe*) It also addresses how global capital and digital technology, as emerging forces and opportunities, interact with and contest the local reality for its speculative counterpart. Lastly, infrastructure analysis and its lens are seen not only as the political-economic hegemonic power shaping and reshaping China's collective identity and national imagery but also as having a latent impact on understanding contemporary China, serving as critical and reflective points in affective experiences, cultural formation, and political aesthetics.

Thinking Infrastructure in "Modernizing China": Concept, Historical Construction, and National Imagery

The conceptualization of infrastructure within the Chinese context is not simply accepted as in its Westernized form. Instead, it exists as part of a fluid, evolving

[6] Other typical definitions of infrastructure are presented as hard infrastructure in materiality, such as roads, railways, pipes, tunnels, and communications facilities, among others; and soft infrastructure in the notion of social systems consisting of policies, regulations, and urban planning in education, sports or cultural institutions, and medical and public health, etc. In addition, social infrastructure concerns the power in relation to communities and the force to move society forward. See Klineberg, Eric. *Palaces for the People: How Social Infrastructure Can Help Fight*. Crown Publishing Group, 2018.
[7] Edwards, *Infrastructure and Modernity*, 186.

historical process and a discourse on spatial modernity that shapes national identity. The idea of spatial modernity in China has been discussed in terms of spatial order and reordering, restructuring, reconfiguration, redevelopment, changes, and transformation in cityscape since the first part of the 20th century (Esherick 1999), tied to national identity extending to late socialist China (Zhang 2006). Modern infrastructure projects, like railroad networks and industries, were initially envisioned under Sun Yat-sen's (1866–1925) nationalism for China's state-building and development. In the aftermath of World War II and the Chinese Civil War (1927–1949), between the Kuomintang and the Chinese Communist Party) and against the backdrop of the Cold War, Mao's China embarked on extensive large-scale infrastructure projects, including industrialization, hydropower, and military facilities. These initiatives laid the material foundation for fulfilling the ideological promise of a socialist utopian society. Following the Open Door Policy in 1978 and extending to the early 2000s, amid globalization, basic industries and extensive infrastructure projects were pursued with government loan investments.[8] Since the 2000s, government investments have pivoted towards "new infrastructure," prioritizing technological innovation and the digital sector. This strategic shift addresses environmental concerns while bolstering China's global infrastructure initiatives. The nation's image now rests on its robust infrastructure, though this comes with controversies and challenges—including geopolitical disputes, environmental impacts, and local government debt.

Viewing these four historical stages, infrastructure correlating to the concept of "modernizing China" is conceived as a legitimacy for the nation-state, ideological belief, and economic growth, all contributing to nationalism and national power. In China's spatial modernization process, the concept of infrastructure paints a broader picture since the late 19th century, particularly focusing on industrialization and transportation networks shaping a modern nation. This state-building emphasis during the milieu of "crisis and reform" in the late Qing dynasty differs from the use of infrastructure as a specialized term in engineering and urban planning. Derived from French in the late 1880s, it refers to architectural forms, energy systems, communications, and transportation facilities as physical substrates for urban life and city planning. As Sun Yat-sen declared, "In today's world, no country can be established without railways."[9] Notably, the first conceivable modern infrastructure in China can be traced to Sun Yat-sen's 1911 article "International Development of China" (published under "Plans for National Reconstruction" in 1920). Although developing a nationwide systematic infrastructure network for China was largely unfulfilled from the late Qing to the Republic of China due to political instability and wars, the infrastructural planning for modern China prioritized industrial development in the hope of "constructing a New China" in its material form and for "future civilization." In terms of Sun Yat-sen's ideal, it aimed to "make capitalism create socialism in China so that these two economic forces of human evolution will work side by side in future civilization." On the other hand, colonial modernity in infrastructure emerged in parts of China: seen in British colonial Hong Kong,

[8] Seen the officially description: "Basic industries and infrastructure include agriculture, energy industry, basic raw materials industry, transportation, postal and telecommunications, water conservancy and environment, public facilities management, education, culture, health, and sports. Basic industries and infrastructure are the lifeblood of the national economy. These sectors support the normal operation of the social economy, provide public service facilities for social production and residents' lives, and play an important role in improving a country's socio-economic development level and competitiveness." Accessed March 12, 2024. https://www.gov.cn/gzdt/2009-09/15/content_1417876.htm

[9] The China's Second Historical Archives (中国第二档案馆) published a series of articles commemorating Sun Yat-sen's 150th birth anniversary. Accessed April 12, 2024. http://www.shac.net.cn/sy_59/tbgb/szs/201611/t20161128_3684.html

Manchukuo (1932–1945) in Northeast China (a puppet state of the Empire of Japan), and Shanghai's urbanization in a semi-colonial context.[10] In the early twentieth century, the infrastructure discourse in China primarily emerged alongside state-building efforts, rooted in nationalism. It served as both a material foundation and a political promise in ideological experiments.

Radically, the idea of "modernizing China" was still pivotal in shaping "New China" as a national identity within the socialist framework of "five-year plan" following the establishment of the People's Republic of China in 1949. Rather than using "infrastructure," the term "capital construction" (*jiben jianshe*), adapted from Russian, was officially used from the First Five-Year Plan (1949–1952) onward. It referred to fixed assets contributing to all sectors of the national economy, including factories, mines, railways, bridges, residences, hospitals, and schools—whether newly built, restored, or expanded.[11] With Soviet Union's aid, "capital construction" in socialist China's lineage formed "Chinese characteristics" such as government investments in fixed state-owned assets, social development in productivity, agriculture and industrialization as essential approaches to economic growth outlined in five-year plans. It also included ideologically-driven propaganda to mobilize mass labor. In Mao's China, the lack of modern technology and large machines was reframed as part of the national identity, evoking socialist beliefs about human-nature relations. Propaganda slogans like "man must conquer nature" (*ren ding sheng tian*) in the 1950s and "The Foolish Old Man Removed the Mountains, Reforming China" (*yugong yi shan, gaizao zhongguo*) in 1965 demonstrated the determination and human intervention required to utilize natural resources and challenge nature in pursuit of the communist ideal. In one sense, the "New China" is spatially represented in the socialist infrastructure landscape as a concrete configuration of "mountains and rivers." In another sense, the allegorical and symbolic meanings, along with socialist aesthetics, form a sense of the socialist new infrastructure landscape as "land art" embodied in water conservancy as well as the aesthetics in visual propaganda, particularly in socialist propaganda posters (Figure 2).[12]

[10] Sun Yat-sen, "The International Development of China," 1922. Accessed March 12, 2024. https://www.gutenberg.org/files/45188/45188-h/45188-h.htm

[11] *Jiben jianshe* 基本建设, which means capital construction originated from Russian words капитальное строительство, was first used in the 1920s, which refers to mainly focused on increasing the nation's capitals for the preliminary development of socialist industrialization. See *Some Definitions of The First Year Plan, Current Affair Handbook, Editorial Department, September 1955* 第一个五年计划的一些名词解释, 时事手册编辑部, 通俗读物出版社 p.52. In addition, between 1949 to 1962, there were 156 infrastructure projects with Soviet Union's aid.

[12] While propaganda posters depicted large infrastructure projects with mass mobilization in Mao's China, visual materials were abundant in photographs (such as those published in China Pictorial 人民画报) and landscape paintings featured in official exhibitions, primarily characterizing scenes and environments with infrastructure sites.

Figure 2: (right) "The Foolish Old Man who moves mountains, changes China," *Gongnongbing huakan* 工农兵画刊, February 1971 (*Source* chineseposter.net, at https://chineseposters.net/posters/e15-644)
(left) Xiao Xiancai, "Moving mountains to create fields," Shanghai remin chubanshe 上海人民出版社, June, 1977 (*Source* chineseposter.net, at https://chineseposters.net/posters/e15-644)

Amidst domestic political movements and the Cold War era, socialist infrastructure maintains its focus but is often characterized by remoteness and concealment within China's mountainous regions. The Great Leap Forward (1958–1962) and the Cultural Revolution (1966–1979) significantly stalled economic development and infrastructure construction. Nonetheless, geopolitical tensions—such as the Cold War, the Sino-Soviet Split, and the Vietnam War—acted as catalysts for the Third Front Movement (*sanxian jianshe*, 1964–1980) in Mao's China. This geo-military strategy, aimed at national security and defense, involved intensive industrial-military infrastructure construction with massive investments and migrant workers. Following the principle of "going to the mountains to hide and disperse" (*kaoshan*, *fensan*, *yinbi*), the "Big Third Front" focused on Northwest and Southwest regions, including Yunnan, Guizhou, and Sichuan provinces. This approach positioned critical infrastructure networks to develop inland China. The Third Front in Mao's China expanded the concept of infrastructure beyond mere capital construction. It evolved within the geopolitical complexity of socialist ideology and Cold War-era national defense. While "capital construction" remained a socialist economic term, the Third Front context broadened the use of "infrastructure" to encompass spatial and historical aspects of industrial and military interventions, in which geological time and socialist time are manifested in spatial narratives as infrastructural memories and legacies. In this light, I argue that the specificity of infrastructure space in China's "Third Front" context reflects both geological and local dimensions: it demonstrates the contextualization of infrastructure at a geological scale while offering spatial alternatives within a geo-spatial framework. Although urban space is often regarded as the primary focus in spatial analysis when discussing the notion of infrastructure space — from Keller Easterling's (2014) initial discussion of the architectural form seen in free zones globally to Tim Oakes' (2023) infrastructure analysis of Gui'an New Area in China, which blurs rural-urban distinctions — it fails to recognize the hidden significance of earlier socialist construction. In addition to understanding the notion of infrastructure space solely in terms of rural-urban transition and spatial inequality, particularly in discussing technology infrastructure such as big data base centers in Guizhou region analyzed in this research, I situate the notion of infrastructure space in socialist China's historical background in a broader sense of geological politics, spatially extending to vast landscapes such as mountains beyond merely the dominant discussion focusing on urban spatiality. Following the context of post-socialist China with the Open Door Policy initiated in 1978, infrastructural spaces have been characterized by rapid urbanization, extensive manufacturing, and significant industrial pollution, all under the umbrella of an increasingly globalized modernity. This era has witnessed both massive infrastructural development and deconstruction. For example, the Three Gorges Dam, which became operational in 2006 and stands as the world's largest hydroelectric power project, has led to ongoing challenges such as geological instability, potential flooding, and the need for population resettlement. Conversely, the full-scale urbanization process has been marked by violence and disputes related to widespread housing demolitions, especially in the run-up to the 2008 Beijing Olympics. Moreover, the emergence of empty cities and *lanwei* architectures—

unfinished buildings—illustrates the impact of global capital on economic bubbles and failures. In this landscape of both constructing and dismantling, infrastructure in post-socialist China unveils spaces of subtraction and discourse that reflect social realities and ecological concerns.

At large, China's infrastructure age, encompassing both "China Made" and "China Service" (World Factory and World Market),[13] is vividly captured in the media's ambivalent label "Infrastructure Madman" — a term that gained popularity around 2015 and became widespread by 2017. At the same time, the Belt and Road Initiative—a long-term, cross-national infrastructure project—advances China's foreign policy goal of creating a "community with a shared future for mankind" (*renlei mingyun gongtongti*), a concept introduced in 2012. Thus, the ideological spatiality of infrastructure in contemporary China is a means crafted in this globalized future narrative.

Particularly, the socialist nationalist ideology of contemporary China is shaped and reshaped through large-scale infrastructures, presented in geological narratives as networks that connect and map out remote regions and frontier territories. Echoing Sun Yat-sen's railway plan legacy from a century ago, the Chinese High-Speed Rail, which began construction in 2008, is now the world's longest and largest railway network, spanning 42,000 kilometers as of 2022. In the mountainous Guizhou province, the world's highest suspension bridge—Beipan River Guanxing Highway Bridge—opened in 2003. Transportation infrastructure has become a significant spatial medium for constructing national identity in frontier territories, particularly as part of ethnic-minority strategies. Notable examples include the Sichuan–Tibet Highway (1950–1969), Qinghai–Tibet Railway (1958–2006), and the world's first desert-circling railway in the Taklimakan Desert of Xinjiang Uyghur Autonomous Region. Railway networks and trans-provincial roads not only map out China's territory for political legitimacy but also illustrate spectacles of mobility and speed, representing national identity through infrastructural marvels. These achievements in human-nature interaction materialize into symbols of national power, as reflected by Wang Yuze, Deputy Director of China Railway Fourth Survey and Design Institute:

> From crossing great rivers to traversing valleys and caves, from stabilizing permafrost in high-altitude regions to withstanding Category 5 typhoons, while also considering the protection of birds in the sky and cultural relics underground.…There are no builders in any other country who would encounter such complex design challenges. However, solving these world-class problems has created world-class projects and a world-class construction workforce, making China an undisputed powerhouse in infrastructure.[14]

The geological narrative is crucial to China's large-scale infrastructure projects addressing energy supply demands and natural resource imbalances. Examples include the West-East Electricity Transfer Project (operational since 2022) and the

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[13] "China 'Infrastructure Maniac'? The business card of 'Made in China' and 'China Service' overseas" 中国"基建狂魔"? "中国制造"和"中国服务"在海外的名片", *The China Current*. Accessed March 12, 2024. https://chinacurrent.com/education/article/2021/12/23452.html.

[14] "'Ten Years of China's Rise' Why the 'Infrastructure Madman' that Amazed Musk is Difficult to Replicate" ([十年中国风]让马斯克惊叹的"基建狂魔"为何难复制), China News 中国新闻网. Accessed March 12, 2024. http://www.chinanews.com.cn/cj/2022/10-04/9866564.shtml.

South-North Water Transfer Project (proposed by Mao Zedong in 1952 and constructed in 2003). These are considered "mammoth infrastructure projects":

> Mammoth infrastructure development is keeping China's economic engine running at a fast clip. Nevertheless, China's urban and industrial centers on the east coast still face energy shortages, in large part because most wind, coal, and hydro power plants are concentrated in the country's inland provinces. China's northern grain belt also faces water shortages as increasing coal production uses more and more water.[15]

Moreover, this geological narrative aligns with the ecological aspirations of China's "ecological civilization," introduced in 2007 as part of the nation's "new infrastructure" initiative. This effort aims to establish China as an "innovation-oriented country" (*chuangxinxing guojia*),[16] emphasizing emerging technologies such as artificial intelligence (AI), clean and sustainable energy, digital industry (including large-scale data centers), and space infrastructure. The concept of ecological civilization has socialist roots, tracing back to Mao's "Greening China" movement and extending to the expansive Three-North Shelter Forestation Program (*sanbei fanghulin gongcheng*, 1978–2050). This program targets the North, Northeast, and Northwest regions of China to combat desertification through afforestation. Environmental concerns have also arisen from industrial pollution, notably the severe air pollution and haze (*wumai*) issues plaguing northern and central China since 2013, with Beijing experiencing acute problems between 2015 and 2016. In response, China's 14th Five-Year Plan (2021–2025) has set an ambitious goal of achieving carbon neutrality by 2060. The ecological narrative inevitably frames and legitimizes the infrastructural discourse of contemporary China, embedding it as an integral part of the political promise in future narratives.

Viewing China's modernization through an infrastructure lens reveals how the concept of infrastructure in China's spatial modernity has evolved. It begins with nationalist modernity, progresses through socialist modernity (aimed at a communist utopian society), develops under globalizing modernity, and is now complicated by "new infrastructure" with Chinese characteristics. "Modernizing China" is essentially a process of "infrastructurizing" China—constructing national identity through infrastructure power. On one hand, modern infrastructure exemplifies the late Qing dynasty's approach of "Chinese Learning as Substance, Western Learning for Application" (*zhongti xiyong*), incorporating Western technology. In Mao's China, industrialization became crucial for national identity, embodied in the slogan "exceeding the UK, catching up with the USA" (*ganying chaomei*). This competition with capitalist countries extended beyond political discourse, shaping desires and awareness of Chinese modernity. Not only did the idea that "modernization does not equal Westernization" emerge, but the concept of "modernity with Chinese characteristics" also unfolded, revealing the complexity of notions of culture and identity in both traditional and contemporary contexts:

> However, the emerging picture of modernity with Chinese characteristics is much more complex than just 'back to the future.' China has successfully integrated traditional notions of culture and identity with several aspects of

[15] David Tyler Gibson, "Interactive: China's West-East Electricity Transfer Project," Wilson Center, https://www.wilsoncenter.org/publication/interactive-chinas-west-east-electricity-transfer-project.
[16] National Development and Reform Commission, "十四五"新型基础设施建设解读稿之家建设, November 29, 2021. Accessed March 12, 2024. https://www.ndrc.gov.cn/fzggw/jgsj/gjss/sjdt/202111/t20211129_1305568.html.

> modernity that it once resisted. In comparison with the 19th century, Chinese leaders are now comfortable with nationalism, industrialization, and technological progress, and up to a point capitalism. At the same time, Chinese development has sought to maintain its collectivist social structure and hierarchical authoritarian–bureaucratic mode of government (Buzan and Lawson 2020, 216).

This research specifically focuses on the implications of the "infrastructure age" on China's spatial modernity from geopolitical, cultural, and aesthetic perspectives. It investigates how infrastructure in the Chinese context is regarded as an agency — both tangible and intangible — in the construction of national identity through intricate, sensible, and speculative approaches.

Previous Research and Theoretical Outline

Infrastructure is not a neutral subject, but has been developed and expanded in scholarly discussions and debates involving modernization and industrialization, (post)colonialist analysis, technological progress and war violence, and human-environment interactions. In this way, the discussions on infrastructure or infrastructure as a lens serve as a contested field and medium for revisiting historical moments, revealing power dynamics, and expanding our understanding of infrastructure itself. This research explores how to understand contemporary China and its spatial modernity through the lens of infrastructure. In doing so, it examines how the Chinese context challenges notions of infrastructure through infrastructural memories and experiences, desires and imaginaries embodied in infrastructure space, as manifested and represented in cultural and visual narratives. As Brian Larkin explains,

> "Aesthetics in this sense is...an embodied experience governed by the ways infrastructures produce the ambient conditions of everyday life, our sense of temperature, speed, fluorescence, and the ideas we have associated with these conditions. Infrastructures create a sensing of modernity (Mrazek 2002), a process by which the body, as much as the mind, apprehends what it is to be modern, mutable, and progressive." (2013, 336-337)

The aesthetics and poetics of infrastructure in cultural narratives resonate deeply with the spatial experience of modern society. They evoke symbolic meanings of local memory and national identity, while also inspiring imaginaries and desires for speculative futures.

Existing scholarship has theorized infrastructure through multifaceted lenses: nation-state modernity, Marxist political economy critique, post-colonial studies, Global South perspectives,[17] assemblage urbanism, elemental media, feminist and queer theory, and cultural studies on spatiality. Firstly, this research acknowledges spatial analysis of infrastructure as a theoretical basis, ranging from Henri Lefebvre's approach to state spatiality, space, and urban rights to Michel Foucault's concepts of power, discourse, and knowledge. These theories posit that moral forces shape the social production of space. Modern infrastructure space, as Ashley Carse (2017) notes, represents "technical engineering to bureaucrats pursuing projects of spatial

[17] A relevant discussion can be found in Cao Yin 曹寅's 2022 book *Port, Sew, Bicycle: How Modern Infrastructures and Everyday Technologies Encountered in Asia* 自行车、港口与缝纫机: 西方基建与日常技术在亚洲的相遇. In this work, Cao explores how colonial infrastructure interventions and narratives shaped daily life in Southeast Asian colonial territories.

integration." David Harvey (1990, 2006) further conceptualizes the spatiality of modern infrastructure through "time-space compression" and "infrastructural fix"—a "spatial fix" that reproduces infrastructure space to resolve capital crises in the neoliberal world. On the other side, Anthropology has extensively explored infrastructure within urban media in colonial context (Larkin 2015), as a source of "infrastructural hope" (Reeves 2016) with an affective force embodying "future-orientation, promise, and emergence" (Stef Jensen, 2021), and temporiality and time of infrastructure (Michtell 2020; Addie, Glass, and Nelles 2024). The concept of environmental infrastructure research encompasses a diverse array of non-human elements (Harvey, Jensen, and Morita 2017, 2). Keller Easterling's (2014) work elucidates the "power of infrastructure" in reshaping global politics and architectural practices. In the field of media studies, scholars such as Nicole Starosielski (2015), John Durham Peters (2015), and Yuriko Furuhata (2022) further develop an elemental approach that integrates media, environment, and infrastructural forms.

Correspondingly, research on infrastructure in the Chinese context is rapidly growing and diversifying. Emerging perspectives are primarily found in journal articles featured in special issues focusing on case studies and specialized research projects. Notably, the "China Made Project" (2018–2023) is an initiative that concerns "global China" in academic productions of collaborative research, journal publications, and conferences. The project spans from broad geopolitical and international relations perspectives to a detailed analysis of the infrastructures themselves, examining the on-the-ground social, cultural, and political aspects of their construction.[18] As the result of the project, the edited volume *Infrastructure and the Remaking of Asia* (2022) provides an overview and specific regional case studies on infrastructure development, examining aspects of "materiality, territory, and networks." On the other hand, a great number of research papers explore China's expanding global infrastructure investments and historicization through the Belt and Road Initiative (BRI), focusing on its impacts, interactions, implications, negotiations, and potential resistances. These studies cover topics such as high-speed railways in Southeast Asia (Guanie, Chen and Adi Syailendra 2021; Rowedder, Wilcox, and Brandtstädter 2023; Kuik 2023) and "Afro-Asian connections" (Bagwandeen, 2022; Günel 2022; Liu, et al. 2024). Specific examples include the TAZARA railway (Monson 2009), life in the shadows of the large-scale Laos-China Railway project (DiCarlo, 2024), and broader examinations of China's overseas infrastructure projects (Stange, 2004; Yu 2024).[19] Furthermore, approaching infrastructure analysis on the domestic side is presented as: the discourse of China's infrastructural fix (Bach 2016), natural infrastructure for ecological civilization (Yeh 2023), "Rural Socio-Material Assemblages" (Wang 2023), and Chinese feminist geography perspectives on infrastructure analysis (Feng and An 2023). Additionally, researchers have explored new directions such as discourse analysis on Chinese "New Infrastructure" (Rao 2023) and examined "affective infrastructure" through cinematic lenses and research-oriented art (Zhou 2024).[20] As summarized in Tim Oakes' (2019) article "China Made: Infrastructural Thinking in a Chinese Register," four themes are proposed—"infrastructural state, spaces, temporalities, and the everyday"— for contemporary China's infrastructure and its global relevance.

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[18] See "China Made Project": https://chinamadeproject.net/about/. Accessed March 12, 2024.
[19] Güçnel, "A Floating Power Plant," 63-80.
[20] Jonathan, Bach. "China's Infrastructural Fix," 2016. Limn, UCLA. Accessed March 12, 2023. https://escholarship.org/uc/item/8qz5s67j

Among these research focuses, orientations, and interests, discussions on infrastructure in the Chinese context are at an initial phase, remaining limited, and fragmented. The major direction that can arguably be observed is that infrastructure, as an adopted theoretical concept, can be broadly applied to China's experiences. This application is evident through infrastructure projects in the dimension of nation-led social transformation and potentially in visual repetitiveness or affective impact. Collectively and tentatively, existing studies confirm the visibility, significance, and potential of an infrastructure lens for contemporary China, but further questions demand critical and close inquiry: What is the idea of "modernizing China" constructed in the discourse and transformation of infrastructure space in historical construction and contemporary narratives? How is the notion of infrastructure understood through localization and internalization with Chinese characteristics? When considering cultural narratives, aesthetic and geological dimensions, what distinctiveness can we think about regarding infrastructure in modern China? Ultimately, how does China's infrastructure space shape cultural identity in terms of socialist national imagery, historical collective experience, and daily life?

Thus, studies on contemporary China's infrastructure, while exploring themes like "practices of statecraft, ideas of the environment, political possibilities, and conceptions of time and space" (Knox and Gambino 2023), often narrowly focus on infrastructure as a means to explain China's foreign policies, development strategies, and socialist regime and ideology. For instance, the "China model" (or "China Made") emphasizes China's rising power and global engagement in capitalism through its infrastructure push with state investments. However, existing research, while partially explaining motivations, political contexts, and cross-national intentions, rarely investigates how infrastructure shapes and reshapes contemporary China's cultural identity through material and aesthetic power in diverse representations, local narratives, and future imaginaries. Accordingly, this research aims to address this gap by exploring the complex interplay between infrastructure space and its cultural identity of contemporary China. By examining the material and aesthetic power of infrastructure through diverse representations, local narratives, and future imaginaries, this study seeks to uncover how infrastructure not only shapes China's physical landscape through material infrastructures but also reshapes its cultural fabric. Thus, it argues that the infrastructure space of contemporary China exists in a counter-infrastructure perspective, fabricating cultural identity through desires for spatial modernity, affective experiences of infrastructural legacy and memories, and spectacles and imaginaries for speculative futures. The concept of counter-infrastructure, as a counterpart to socialist China's infrastructure-making in sites, places, and territories, addresses disasters, suspensions, deconstructions/demolitions, temporality and speculations, while also examining how counter-infrastructure narratives and aesthetics articulate cultural identity within China's infrastructure space. More specifically, this research situates infrastructure space within "places," echoing Yi-Fu Tuan's (1977) concept of "Chinese place." While space represents hope, achievement, and stability, place is deeply rooted in memory and cultural identity through "place-making." This process of place-making now interweaves with infrastructural memory and affect.

Mainly adopting methods from cultural studies, media studies, visual culture, and contemporary art analysis, my approach to studying the infrastructure space of

contemporary China focuses on three major aspects: First, this study explores the cultural power of infrastructure in shaping memory and legacy, as well as its implications and discontents in contemporary China. It examines these themes against the historical backdrop of Mao's era and post-socialist narratives, focusing on case studies from marginalized locations and regions in terms of politics and economic development. Second, spatial analysis through a media approach to infrastructure in geopolitical and ecological discourses. Third, the visual aesthetic and affective dimension of infrastructure in films, literature, visual materials, art spaces, and multi-media art research projects. Although the existing methodology covers a wide range of research topics on infrastructure in Chinese cases from interdisciplinary perspectives, my approach attempts to add a new analytic framework as a mixed-methods and theoretical convergence for an infrastructure lens, not only acknowledging the interdisciplinary nature of infrastructure analysis but offering a potential perspective to think about infrastructure space beneath "Chinese characteristics" from viewpoints of socialist spatial modernity, cultural narratives, aesthetics, as well as the geological and ecological dimensions. Here, the narrative of "Chinese characteristics" not only refers to the dominance and authority of ideological propaganda and governance implemented by the Chinese Communist Party but also serves as a rhetorical strategy for socialist China's contemporary reality, addressing its specificity outside of Western hegemonic narration.
The first approach addresses the elaboration of the concept of infrastructure and counter-infrastructure, focusing on the manifestations and consequences of infrastructural power through cultural power, which metaphorically exists the shadow of infrastructures. This "cultural power," while extending and extrapolating the "dimension of meaning and the symbolic of culture," happens in social relations and questions the organizational power (Hall 1997). On a basic level, the social relations in power dynamics embedded in infrastructures within technological politics (Sutheerawatthan and Minato 2008, 208) deal with governance issues imposed on society for planned sustainable development. The technopolitics further complicates the infrastructure space in the social system:

> A technopolitical regime consists of a configuration of heterogeneous elements, combining mainly technical materialities, discourses, texts, rules, procedures, plans, operating instructions, and calculation techniques—the list is open—which are rendered mutually interdependent and support one another. (Hecht 2009, xiii)

The infrastructure is inherently political as well as an outcome of politics: political infrastructure for infrastructure as governance instruments and the politics of infrastructure for infrastructure is the specific space of political disputes (Nolte 2016). In this research, the understanding of politics of infrastructure is relevant to the concept of James C. Scott (1990)'s "public transcripts" composed in domination and hegemony and "hidden transcripts" in the "infrapolitics of the powerless" reflecting in the power of infrastructure. Moreover, the notion of "cultural fix" associated with "infrastructural fix spatially and culturally" has been analyzed in textual form as resistance and alternative stories in the field of colonial literature (Davies 2017).

To go further, I refer to the cultural power that approaches the infrastructures shaping and reshaping a cultural identity—from local perspectives to the national imagery of China—which both conceal and reveal infrastructural memory, struggles,

and shifts. To be more specific, based on the temporality of "unbuilt and unfinished infrastructures" (Carse and Kneas 2019), a never-finished infrastructure conditioning complicates the cultural identity of infrastructure space, which can be conceived of as an unfixed entity in silence and noise, in "a cluster of flowing currents" (Said 2000). In this research, the analysis of counter-infrastructure as cultural power is located in the case study of Zhengzhou (Chapter 1 and 2), the capital city of Henan province in China's Central Plain. Known as a "the railway brought city," "Green City," "trade city," and "iPhone City," Zhengzhou's infrastructure spaces articulate its cultural identity through infrastructural memory and conditioning, shaping its spatial modernity. Despite this, the city remains economically, politically, and culturally underrepresented and overlooked. By examining the cultural power of infrastructure space, Zhengzhou's struggle to define its cultural identity emerges as a salient example of how counter-infrastructure is articulated and narrated. This case study offers insights into China's infrastructure space through the lens of an inland geological center that serves as a crucial node in the nation's railway transportation network.

The second approach elaborates on the spatiality of infrastructure through ecological aspirations and geopolitical dynamics in modern technology and global capitalism. Under the flux of the impact of globalization, infrastructure space is an integral part of "a global sense of place" (Massey 1994) as modern experience in protocols, network, and styles (or placeness due to capitalist production according to Harvey, 1989). In turn, I argue that infrastructure space addresses the locality in its spatial practices and transformation for openness and specificity, multiplicity and changes. Accordingly, this research considers infrastructure space in contemporary China in speed, scale, and contingency that is central to the spatial analysis from globalization in crisis to the local response and reflections through an infrastructural lens in potentials. In this sense, the "categories of space" also produce and reshape the dominant cultural logistic of our time as Jameson (1984) already notes:

> We have often been told, however, that we now inhabit the synchronic rather than the diachronic, and I think it is at least empirically arguable that our daily life, our psychic experience, our cultural languages, are today dominated by categories of space rather than by categories of time, as in the preceding period of high modernism proper. (64)

Infrastructure at its core is a space, taken from Doreen Massey's proposition, "is a sphere of possibility, shaped by multiple stories, historical and geographical trajectories, and embodied relations." From Walter Benjamin's concept of "empty, homogeneous time" on human history progressing in the name of modernity and technology, the crisis of temporality has shifted to "space filling": space is "not simply empty" or "never empty" according to Henri Lefebvre. On the other hand, the modernity of spatiality is understood as Walter Benjamin notes (1999): "The world dominated by its phantasmagorias—this, to make use of Baudelaire's term, is 'modernity'." My approach to infrastructure takes this lineage of spatial analysis as one of the central arguments for the existence of infrastructure space are heterogeneous and conceivable. On the other hand, infrastructure in *being* or philosophy of technology represents in Heidegger (1953)'s *gestalt* (enframing) self-revealing in demand and extraction of natural resources for development (meanwhile human resources also being part of this). In other words, the relation between nature and humans through modern technology is (un)concealment of the

world. In the sphere of modern technology development, the visibility of infrastructure becomes a contested subject where the materiality or material history of infrastructure is central (Hansen and Schulze 2021) in macro-economics and politics mediated technologically, which was previously invisible to the public in its macro-scale in relation to nature (Edwards 2003, 221): infra- as a vertical perspective from ground, mountains, and planetary Earth. In this light, infrastructure, more than a technological object, is a multitude of forms of media in power relations and authorities for power configurations and operations (Winner 1993).

In addition, my approach to considering infrastructure as architectural forms in global politics and urban space follows Keller Easterling's (2014) penetrative and provocative phrasing and explication of the notion of "Extrastatecraft." The "power of infrastructure" is systematically operated by merging governing rules and outer space law, logistics and strategies, digitalization and repeatable architectural forms. More importantly, the politics of infrastructure radically exposes the counter-politics of infrastructure in disguise, disposition, and counter-aesthetics. Specifically, infrastructure space as spatial formulas is particularly practiced through the realm of the infrastructure zone. In this light, the infrastructural promise is evident in contemporary China's modernization process in relation to emerging nature and geopolitical discourses (Chapters 3 and 4). Examples include the island frontiers of Hainan and Chongming as infrastructural zones, and the digital infrastructure frontier (or "new infrastructure") in Guizhou province's karst landscape. These peripheral, previously underdeveloped and overlooked areas are becoming infrastructure frontiers for China's new infrastructure space. This transformation is driven by state investments, policy support, ideological discourse, and propaganda promotion. By considering China's "new infrastructure," it can be understood through the lens of experiment zones and new areas, contextualized by geological formation, sovereignty, and speculative future.

The third conceptual tool and approach focuses on the aesthetics and visual representations of infrastructure, exploring its imaginative capacity, sensibility, metaphorical meanings, and visual narratives. The aesthetics conveyed through the representational aspect of infrastructure in narratives are crucial for reflecting on and rethinking infrastructure's consequences and experiential qualities. The aesthetics in infrastructures can be revisited through the concepts of Larkin's embodied experiences and Jacques Rancière's *aisthesis* in politics and redistribution in art capacity. In the notion of necro-aesthetics conceptualized in infrastructural brutalism by Truscello Michael (2020) in the context of (post)industrial landscape as well as "the concrete aesthetic of Brutalist architecture" which involves a reading of literature, films, and photography of the United States. Together, this research also considers Jussi Parikka (2015)'s concept of "speculative aesthetics" connecting technology and society in the view of geophysical aspect (the deep time of the media) which "offers insights to earth media arts": "media aesthetics contribute to new forms of political design of culture" (5, 7). Thus, my approach to aesthetics in infrastructural analysis consists of "media ecology" (Maxwell et al. 2015) for ecological narratives and in the multifarious representations in artistic expressions which look at material and immaterial components of infrastructures.

Aesthetics and poetics are salient in the massive infrastructure project of the dam, where the infrastructural landscape features a spatial mobility and configuration of

water resources for electric energy in relation to the politics of hydropower. In particular, the sense of techno-poetics manifests in the spatial practices of large-scale hydro-infrastructure not only as a modern spectacle but also as a shifting aesthetics of infrastructural memory, lineage, and legacy. For instance, the Hoover Dam embodies a sense of "technological sublime" (the term developed by Perry Miller) that transforms American experience into visible and impressive technological achievement in the postwar era (Nye 1994). In China, the aesthetic history of the Three Gorges region as cultural and spatial production (Byrnes 2019) and a new kind of architectural shadow in the "politics and poetics of infrastructure" through archival visual materials in the research project and exhibition Ode to Infrastructure (Wang, Pan, and Zhou 2016).[21] Such a kind of socialist aesthetics of hydro-infrastructure space is also perceived in a sci-fi narrative as the ideological spatial representation of a socialist utopian society. In the 1958 propaganda film *The Rhapsody of Ming Tombs Reservoir*, directed by Jin Shan: It changes and challenges the natural landscape while utilizing hydraulic power and resources to serve the construction of New China during the Great Leap Forward period (1958-1962). This is embodied in socialist China's propaganda slogans such as "Man Must Conquer Nature" (*rending shengtian*) or "The Foolish Old Man Removed the Mountains, Reforming China" (*yugong yishan*, *gaizao zhongguo*) as modern violence in infrastructural spatiality, which also is part of the symbolic meanings and aesthetics of infrastructures.

Accordingly, the aesthetics and poetics of infrastructure coexist in counter-aesthetics in suspension, intermittence, and uncertainty. This is also how the concept of counter-infrastructure can be understood as a counterpart of the legitimacy of state-building that relies on infrastructural constant planning, new initiatives, maintenance, renewal (Wang and Huang 2019, 148), "temporal fragility" and temporality of infrastructural life in decay and in individual lives/communities (Ramakrishnan et al. 2020; Rich et al. 2023) and "the promise of modern technological efficiency" (Kanoi, Lim, Yamada, and Dove 2022). In the context of East Asian countries, for example, Japan's modernity is symbolized by the world's first high-speed railway — Japan's Shinkansen (constructed in 1971 and operated in 1982) for hopes and social imaginaries and the demonstration of China's crucial national identity in globalization through the 2008 Beijing Olympic Games resulted in rapid urbanization with mass demolition. This is how Brian Larkin elaborates on the notion of "political aesthetics" of infrastructure to understand the governmental promise of infrastructures, which highlights the distribution and visibility of infrastructure in its representational and experiential qualities (2018, 175, 179). Extending on "political aesthetics," I use the notion of counter-aesthetics referring to both ecological aesthetics and aesthetics of contemporary art to think about the new infrastructure space in spatial transformations and art representations (Chapter 5 and 6). Whereas, thinking of a high infrastructure age and its resultants, Harvey, Jensen, and Morita (2017) comment:

> A significant impetus behind the current vogue for infrastructural analysis is the increasingly obvious fragility of many infrastructures. Where breakdown is regular (Harvey 2005; Campbell 2012), or where infrastructures have collapsed (Simone 2004; Harvey 2015; Jensen 2016), patterns of visibility

[21] A research project by Pan Lu, Bo Wang, and Zhou Xin took place from October 29 to January 21, 2016, at META Project Space, Shanghai. More information can be found at https://www.bo-wang.net/ode.html. Accessed March 12, 2024.

> are quite different from those where connectivity can be routinely assumed. (3)

In this sense, the fragility of infrastructure is primarily manifested in the notion of "affective infrastructure," which grounds itself in Raymond Williams's analysis of how to "think about cultural life as a present and unruly reality" (Sharma and Tygstrup 2015, 4). The "structure of feeling," methodologically according to Williams, is a cultural hypothesis, which affective infrastructure mainly reveals in art and literature on sensible social and material experience (Williams 2015[1977], 24). In its material form of affective architecture (Micieli-Voutsinas and Person 2020), it also distributes and cultivates a memorial landscape and spatial heritage to think on infrastructure in its cultural landscape.

Lastly, this affective approach to infrastructure aesthetically, visually, and metaphorically maps out the power of infrastructure in a sense of counter-globalization and beyond human scale. Cultural theorist Gayatri Chakravorty Spivak's (2015) notion of planetarity for alterity, instead of the control of globality, is relevant here. The planetary thinking (Hui 2021) further demonstrates the existence and perception in catastrophes and crises, and "staying with troubles" through "making kin" or "Tentacular Thinking" (Haraway 2016). Against this backdrop of planetary mindsets, as well as in the term infrastructuralism conceptually described by cultural anthropologist Marshall David Sahlins (2010), which indicates cosmic value and in totality as society in which alterity is a condition of prosperity, I suggest the power of infrastructure in planetary discourse should consider the aesthetics and counter-aesthetics dimension through its visual spectacle and speculation. This is essentially captured in the stunning and legendary imagery *Earthrise* (1968) taken from the moon and *Blue Marble* (1972) taken from space, by the U.S.'s NASA Apollo mission. Similar to the photograph of the "nuclear mushroom cloud" in 1945 at the end of WWII, the power of infrastructure rooted in nuclear weapons or space technology predominantly is shaped and enabled in visual aesthetics representing the effects of humanity and Earth in fragility, evocation, and sentimentality, which is also an integral part of counter-infrastructure. Thus, the aesthetics of infrastructure manifest in visualizing the global environment, the power of technology infrastructure in the Anthropocene context is ultimately questioning "who speaks for Earth" and "whose Earth?"[22] This further echoes the planetary vision of infrastructure in contemporary China and its futuristic narrative. In this sense, contemporary China's representation, fantasy, and desires of infrastructure are dramatically visualized in the 2019 and 2023 blockbuster science fiction film series *The Wandering Earth* (*liulang diqiu*). Although the central theme of the film is an ultimate disaster (the expanding and exploding sun) for humanity, the innovation and aesthetics of heavy industry (such as machinery equipment, cargo trucks, and the space elevator) are noteworthy metaphors for China as an "Infrastructure Madman" due to its rapid growth and achievements in infrastructure construction. In *The Wandering Earth*, the entire planet Earth is transformed into a locomotive infrastructure, featuring an unprecedented scale of infrastructure that is visualized and fantasized.

[22] Lekan, "Fractal," 179, 197

Overall, in this research, I relocate the concept of infrastructure and its counter-infrastructure perspective in the Chinese context historically, geographically, and culturally. Three main analytical frameworks are applied to case studies: First, infrastructures constructed and shaped by spatial politics, strategies, and economic development—what I call the operation of social power for infrastructural reality. Second, the power of infrastructure in ideological registers, manifesting as propaganda, cultural narratives, and symbolic meanings and aesthetics. Third, the diverse representations of infrastructures in art, literature, film, visual materials, sound, and music.

Chapter Outlines

Rather than providing a panoramic and comprehensive analysis of China's infrastructure, this dissertation's case studies examine specific places, locations, and territories—particularly the inland central plain and oceanic/karst territories—to illuminate the distinctive nature and potential of China's infrastructure space. The inland central China is Zhengzhou, and the geographic borderline is showcased in two geological realms—island boundary, which includes Hainan Island and Chongming Island; and mountainous landscape, which refers to the region of Guizhou province (Figure 3). The rationale for the location selection of case studies is threefold: first, at a macro-level, I propose that these locations and regions are able to represent and characterize the nature of China's infrastructure space in their spatial modernity, primarily under socialist China's construction and development. As explained in the previous section, the spatial modernity of China exists within a complex historicization, evident in cities influenced by and regions physically constructed in colonial and semi-colonial contexts prior to 1949. However, these case studies address the spatial modernity of infrastructure mainly developed, constructed, and shaped in socialist China's context.[23] In this sense, the dissertation concerns the "infrastructural Chineseness" in the historical construction from Mao's China to contemporary China.

[23] Although Hainan Island was occupied by the Japanese colonial regime from 1939 to 1945, the colonial construction was minimal and unfinished. This construction primarily consisted of a railroad from the Shilu iron mine to Sanya port for mineral resource extraction to export to Japan, supporting its war supplies.

Figure 3: The locations and regions used as case studies in the dissertation including Zhengzhou, Chongming Island, Hainan Island (South China Sea), and Guizhou (*Source I*mage by the author, 2024)

Second, the locations and regions of case studies are characterized as politically and economically underrepresented in socialist history while highlighting the nation's infrastructural push and its future promises from earlier socialist history to contemporary China. In other words, the rationale for case studies in these three regions, territories, and landforms is to understand how the power of infrastructure articulates, complicates, and speculates on contemporary China's spatial modernity and operations, cultural identities, aesthetics, and ecological narratives from the economic and political peripheries of China. Although these three areas have long been overlooked, overshadowed, and underrepresented due to political marginalization, economic backwardness, and social issues such as regional discrimination, lower GDP rankings, or less policy support, they either claim a complexity of infrastructure space in memory, oblivion, and dilemma or are in the process of developing future-oriented "new infrastructure space." Examples include urban expansion as a manufacturing infrastructure zone for Zhengzhou, Hainan Island as a Free Trade Port, Chongming Island promoting itself as an ecological island, and technological infrastructure of digital industry and space infrastructure established in Guizhou. Thus, I argue that these three geological types of China — inland central plain, islands, and karst terrain — are not only developing into crucial infrastructural discourse but are arguably the most representative infrastructure spaces of China in dramatic shifts and frontier experiments, ongoing struggles and unfulfilled speculations. In other words, under China's national imagery as an "infrastructure madman" with its massive global infrastructure impact, understanding China's infrastructure space should return back to its intrinsic dialectics and the operation of geological power, which goes beyond the power of simply and straightforward political and economic concentrations.

In addition, using the concept of "central plain" in the case study of Zhengzhou city in Henan province, I emphasize the discrepancy and complexity between its geological centrality—physically embodied as "the heart of Chinese railway network"—and its marginalization socially, politically, and economically. Primarily, I regard the case study of Zhengzhou's infrastructure space as prominent and pertinent, not only to complicate the concept of infrastructure in China but also to explicate the notion of counter-infrastructure. I shift and expand the focus from inland central China to the nation's territories: islands bordering oceans and areas inside mountains and caves. Geopolitically, at the edge of China, the "new infrastructure construction" (special zones, digital industry, massive astronomy equipment) is fabricating up-to-date infrastructural reality from local contexts and evoking imaginative dimensions and speculation. In this way, these new infrastructure developments are indebted to the geopolitical boundaries, but in different fashions. The physical geological remoteness and relative independence demonstrate the development opportunities for natural resources and isolated conditions for socialist infrastructural experiments and operations.

Lastly, the locations and regions of case studies demonstrate the cultural matrix through an infrastructure lens to understand contemporary China. On one side, they are increasingly featured on social media for public visibility and attention on hot topics concerning official policies and development, significance and dilemmas delivered as debates and consequences of infrastructure space in China, such as seen in propaganda of policy-making, social inequality and local government debts, and the impact of climate change from natural disasters entangled with man-made disasters. On the other side, the infrastructure spaces of these locations and regions are intensively reflected as emerging cultural narratives in the representations in new art spaces (e.g., the MadeIn Art Museum on Chongming Island) and multimedia artworks, such as those seen in the technology infrastructure-based field trips and exhibitions organized and facilitated by curators and artists.[24]

Chapters 1 and 2 lay the foundation for understanding how infrastructure constructs a cultural identity of modern spatiality in urban spaces. Using Zhengzhou's infrastructure as a case study, I argue that the city's modernity stems from two key factors: its strategic location in China's central plain—where the nation's railway networks intersect—and its abundant, low-cost labor force, exemplified by the Foxconn Plant manufacturing iPhone products. Yet despite being designated as one of "15 new first-tier cities in 2024" and its status as an inland special economic zone, Zhengzhou's urban development reveals a complex landscape of challenges and possibilities, fostering an ambivalent cultural identity. After establishing the conceptual basis of "counter-infrastructure" through this urban case study, Chapter 3 and Chapter 4 investigate the future promises and speculations of contemporary China's emerging infrastructurizing process in island/ocean territories and inland mountainscapes. Islands as infrastructural zones and digital infrastructure in karst landscapes are focal areas for China's future infrastructure constructions. Chapter 3 examines two islands as infrastructure: Hainan as a Free Trade Port and Chongming as an ecological island. Chapter 4 analyzes how digital infrastructure such as big data centers and space infrastructure, claimed as new infrastructure for China's

[24] While I conducted several field trips to the locations and regions for my case studies to observe, record, and archive the infrastructural landscape through physical experiences and affective feelings, the local museums, official and unofficial archival centers, and unexpected discoveries revealed my approach to the infrastructure lens in its specificity and beyond. This approach demonstrates that infrastructure is not only everyday spatiality but also a latent cultural spark.

future, is developing in the karst landscape of Guizhou province, recalling the socialist history of the Third Front Construction as an infrastructural legacy from Mao's era. The last chapter argues that counter-aesthetics offer a way to approach counter-infrastructure through ruins and sci-fi imaginaries in China. Chapters 5 delves into case studies of art projects and films to explore the infrastructure space of contemporary China through the perspectives of visual culture, poetics, and counter-aesthetics in the age of the Anthropocene, which echoes the planetary vision. The cultural identity of infrastructure space in contemporary China narrates the process of negotiation and resistance in the configuration of power. The power dynamics on the macro-level are reflected in the socialist infrastructure model, such as the "Five-Year Plan" with "Chinese characteristics," as hegemonic state power in policy-making, massive investments, and total planning. The power dynamics on the micro-level in local response, alteration, and modifications for infrastructure construction and discourse open up alternatives, fluctuations, and deviations. More overtly, the natural power seen in natural disasters and geological capacity acts as powerful integral forces to conceive the nature of infrastructure space. This dissertation, at its heart, challenges and problematizes how power dynamics construct socialist China's material infrastructure, shedding light on a new paradigm of infrastructure lens to understand infrastructure space in spatial, cultural, and aesthetic experiences through specific case studies in contemporary China.

CHAPTER 1
The Power of Infrastructure: Shaping Zhengzhou as a Railway City

Memory is redundant: it repeats signs so that the city can begin to exist."
— Italo Calvino, *Invisible Cities*

Zhengzhou: Railway Lines Locating the Infrastructural Crossroad of China

Railways, as a modern material medium, are machine assemblages that spatialize mobility on Earth. This mobility collapses spatiality and temporality, as the landscape during a railway journey replaces the space between two locations and multiple stops. Wolfgang Schivelbusch, in *The Industrialization of Time and Space in the Nineteenth Century* (2014), investigates and vividly delineates the modern experience of travel, speed, and risk as a cultural narrative of the railway industry. The railway journey visually and bodily dissolves the space outside the railway, as well as the relationships between travelers. On a mental level, the industrial experience can bring about illness or recovery due to technological failures. Despite the mobility of railways, their expanding spatial practice demands urbanization, from the railway station to surrounding architecture, trade, and population flow. This can be seen as a critical consequence of the spatial modernization of transport infrastructure. In this lineage, how to understand and pinpoint the railway as transport infrastructure in locality and modernity left out from its speed and mobility? And if the railway is one of the essential and crucial modern infrastructure legacies, what can this infrastructure form shape urban space infrastructural memory for a city's modern or counter-modern identity?

Railroad, circulating goods, capitals, and humans on continents and islands, has a vibrant and contested history as the outcome and consequences of modernization. In semi-colonial modern history from the late Qing dynasty, the frontiers of China feature railway construction as initial infrastructural memory in geopolitics, ecological counterparts, and incipient industrial transformation. Kunming-Haiphong railway (1904-1910) built by colonialists of French Batignolles Construction Company in 1908 with hundreds of local labor sacrifices contributed to the well-known infrastructural achievement: K-shaped Faux Namti Bridge. The infrastructural landscape delineated in Liang Yongtai (1921-1956)'s printmaking piece 1954 *Where No One has Been Before* (Figure 1.1): the vertical landscape painting with two wandering deer in a deep and serene gorge noticing the passing train over the K-shaped bridge at the small portion of the painting floating between and over mountains. Liang's unique depiction of the railway in the natural landscape further raised debate and discussion in visual culture in socialist China (socialist realism) in relation to art and life for the public and audiences:

> The debate drove home the idea that socialist artwork belongs to the public domain and is therefore subject to public scrutiny. It also clarified the expectation that socialist realist art be informed with a deep historical consciousness, and that national identity and collective aspiration be pivotal to a socialist landscape. (Tang 2015, 47)

In this socialist context of visual culture, the railway and K-shaped bridge become the critical subjects between socialist ideas and the actual landscape, which complicates and renews the ideological value and cultural imagery of the railway as

infrastructure in China. The ecological awareness in shifting the regional landscape is reflected in the railway confronting nature, transforming it into a new industrial landscape through the infrastructural subject of the railway. In the northern frontier of China, the colonial infrastructural legacy of the railway, seen in the South Manchuria Railway project (1906-1945), which was invested in and constructed under the Japanese Imperial regime, argues that the historical context in the ecological condition of unreclaimed fields and more than thirty million immigrants as essential environmental and social elements contribute to the modernization of northern China in Manchukuo time (Liu 2022).

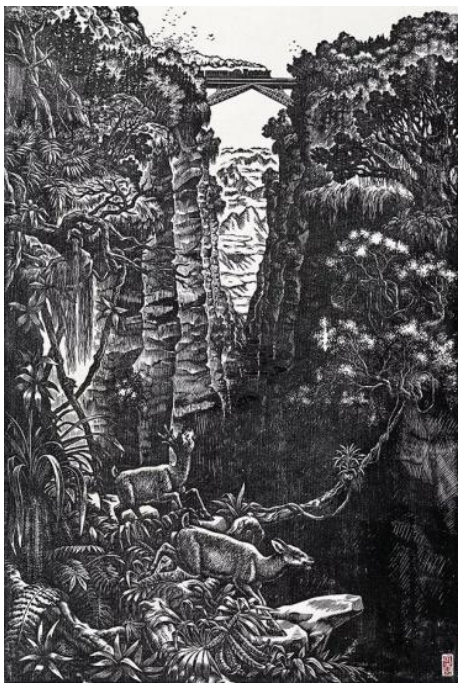

Figure 1.1: Liang Yongtai, *Where No One has Been Before*, 1954, printmaking (*Source* Courtesy of the artist)

Today, China has been building the largest high-speed network in the world, which claims the age of railroad booming of the 21st century (Wolmar 2014, 329). The transportation infrastructure achievement as China's national infrastructural imagery also demonstrates in the world's highest Qinghai-Tibet railroad in full complete operation in 2006 and the world's first high-speed loop train on the tropical island Hainan in 2015. Not only have the railway infrastructure projects nearly completed their remarkable accomplishments per se, but China's investments in railroads as national capital also reach out to the transportation infrastructure in connection to Africa in its both post-colonial and contemporary context:

> The renaissance of rail is arguably most remarkable in Africa—a continent that has never properly exploited the advantages of rail transportation. Now, thanks in many instances to investment from China, several major lines have been brought back into use and others are being constructed. A plan to build an 1,800-mile (2,900-km) line across central Africa, linking the capital of landlocked Rwanda, Kigali, with the Kenyan port of Mombasa, looks set to proceed with Chinese money at a cost of $13.8 billion. (Wolmar 2014, 385)

To locate railway in the nation's infrastructural ambitions and achievements, Zhengzhou (capital city of Henan province) geologically pinpoints the transport

central intersection and junction of the railway network for mainland China, with similar cities such as Nagoya for Japan or Birmingham for England. The railway for Zhengzhou inevitably constructs its urban identity for modernization and industrialization. On the other side, the transportation central location or crossroad of the railway system for a city preserves industrial memory in its urban space rather than consolidates its political or economic prosperity. For Zhengzhou, the city is one of the prominent urban identities to understand its social realities, political struggles, and even overlooked representations of its memory of the railway. In this chapter, rather than focusing on the nature of the railway in motion, I regard the railway as intrinsic infrastructural memory that articulates and fabricates Zhengzhou's urban identity and modernity in local cultural and spatial elements. This infrastructural memory of the railway is constructed in ideologically imposed power dynamics and propaganda narratives, but more than that, it mediates an infrastructural-based cultural memory in spatial representations, visual materials, and emerging media culture. Constantly, an ambivalent question is worth asking to consider the modernity in the cultural narrative for Zhengzhou as a major provincial capital:

> "People might well raise the question: why could Wuhan and Zhengzhou, two of the provincial capitals that have a splendid cultural heritage and solid foundation for the central plains civilization as well, not become cultural centers?" (Wang 2017, 91)

To engage with this paradoxical and controversial question in greater depth and nuance, I propose to look at Zhengzhou through an infrastructure analysis framework. This analysis will specifically investigate how infrastructural elements shape and reflect the city's complex urban identity within its socialist context, while also exploring the intricate relationships between (counter)modernity and unresolved infrastructural memory. Furthermore, this study will delve into the interconnected dimensions of cultural narratives and spatial practices that have emerged through this infrastructural memory and place-making.

The Power of Infrastructure: Railway as Modern Identity for Zhengzhou

There is not yet an official railway museum established in Zhengzhou, the provincial capital city of Henan (Figure 1.2),[25] but the origin of Zhengzhou as a city is well-known due to the influence brought by trains. Today, one of the main Europe-China railway lines departing and arriving at Zhengzhou connects and circulates the local and national economy with global capitals through transportation infrastructure. In December 1948, Zhengzhou, Kaifeng, and Luoyang were taken over by the Chinese Communist Party during the Civil War. It was not until October 1954 that Zhengzhou county was upgraded to the official capital city of Henan province in socialist history, moving the capital city from Kaifeng, located 68 km east of Zhengzhou. The main reason given was that Zhengzhou is the central location of transport infrastructure in central China (Figure 1.3), and the relocation of the capital city would improve economic development and facilitate the administrative operations of the province.

[25] There was a theme park in Zhengzhou, Century Theme Park 世纪欢乐园(2004-2020), ever features retired trains.

Figure 1.2: Map of Zhengzhou, located in Henan province, China (Source Public Domain)
Figure 1.3: Locations of Zhengzhou, Kaifeng, and Luoyang on map (Source Public Domain)

Zhengzhou, as the central location of railway transportation infrastructure in China, traces back to the late Qing dynasty. In 1906, French Polish tunnel engineer Joseph Skarbek, who took a three-year task of railway construction in China, captured a series of photos from 1907 to 1909, archiving the Kaifeng-Luoyang railroad line with its surrounding environment, people's daily life, and rituals. Along the railway construction, railway bridges were frequent entities in various architectural forms to connect, condition, and renew the land.[26] Resided in the Kaifeng-Luoyang railroad line (183km), Kaifeng claimed the role of capital city for a longer time and Luoyang for a shorter period before Zhengzhou, where it is the middle point. The segmental railroad line between Kaifeng and Luoyang gradually became a part of Longhai Railway line (from Lianyungang in Jiangsu province to Gansu in Lanzhou province, across eastern-western China). After the First Sino-Japanese War (1894—1895), the first railway project initiated by the Late Qing government brought in Zhengzhou, which the plan was proposed by the grand councillor, Zhang Zhidong, who operated and promoted the reform and modernization in Chinese history. Initially, the railway line was named as Marco Polo Bridge to Hankou railway (then called *Jinghan* railway, from Beijing to Hankou, Wuhan), the major railway transport system connecting North and South China. Although in the late Qing period, the population of Zhengzhou was less than 20 thousand, it claimed the absolute central point of two arterial railway lines between Jinghan Railway and Longhai railway (major east-west railway in China, from Lianyungang, Jiangsu to Gansu, Lanzhou), completed and operated the Yellow River Bridge (1905-1987) in November 1905 for the whole railway construction project. In regard to political administrative position in this time period, Zhengzhou was a county in the Republic of China period in 1913. Although in 1928, Zhengzhou was proposed to be promoted to city level during the warlord Feng Yuxiang (1882-1948) in power, it was put back as a county again in 1931.

From Kaifeng-Luoyang railway to Luohai Railway line, Zhengzhou eventually, as a central geological location, connects the eastern-western and northern-southern railway networks of China. On October 22, 1948, during the Civil War, the People's Liberation Army crossed the Yellow River Iron Bridge along the Jinghan railway and Longhai railway, which featured multiple battles with the KMT (Kuo Min

[26] A collection of photographs by Joseph Skarbek, published in *Bian-Luo Railway Line from a Century Ago*, compiled by the Zhengzhou Municipal Archives and published by Zhongzhou Ancient Books Publishing House, 2015.

Tang), ending with the final battle at Zhengzhou. Thus, the two major railway lines crossing at Zhengzhou fixed its modern political identity. The Yellow River and railway lines are two major forces for Zhengzhou, naturally and artificially. The railway network in China shows that Zhengzhou is the critical way connecting Beijing to the southern region for future development. On the other hand, it also characterizes the supply of agricultural products for transport out.

To pinpoint and identify railway lines for Zhengzhou, boundary stone (or boundary marker), as an elemental material entity of railway infrastructure, acknowledges the initial and primary spatial intersection for transmission zone, official power, and natural landscape. Site-specifically, boundary stones are significant property for infrastructural identity as material signs for historical and cultural acknowledgment and record. During my archival research at Zhengzhou Archive Center, a special exhibition dedicated to railway boundary stones, "The Collection Exhibition on Zhengzhou's Old Boundary Stones from Mrs. Zheng Enmao (b.1944, Zhengzhou)," was placed in a small room (perhaps the exhibition ended and all the exhibition objects were stored in this space). The collection includes some of the most significant boundary stones such as Kaifeng-Luoyang Railway collected in 1973 and Longhai Railway collected in 1981, and Jinghan Railway collected in 2008 (Figure 1.4). The boundary stones are material evidence to archive Zhengzhou's railway history and urban transformation, such as several boundary stones collected from the construction sites of Nongye road expansion project and the demolition sites of Xiaoduzhuang Village.[27] In this process, the material objects of boundary stones physically and symbolically compress the infrastructure narrative in the construction of the railway and urbanizing process for Zhengzhou's urban identity. In a sense of spatial displacement, railway boundary stones removed from their original location indicate a fading, as well as a taken-for-granted memory of the history represented, and signal the power of deconstruction and demolition in urban transformation for Zhengzhou's modern identity.

Figure 1.4: The storage room view of railway boundary stones from the special exhibitions "The Collection Exhibition on Zhengzhou's Old Boundary Stones from Mrs. Zhang Enmao" (*Source* Photos by the author, 2023)

[27] The description and background information on railway boundary markers are from the exhibition statement on "Exhibition on Mr. Zhang Enmao's Collection of Old Boundary Makers of Zhangzhou" 张恩茂先生郑州老界碑收藏展.

The railway as transport infrastructure is critical to the history of Zhengzhou, not only as a means to modernization but also for its political significance and role in supporting the state. Geographically, Zhengzhou is characterized as a plain land, situated between Luoyang—circled by mountains 140.6 km to the west—and Kaifeng, 78.7 km to the east, where the Yellow River overhangs the city. Kaifeng and Luoyang possess thousands of years of history, having served as ancient capitals many times in Chinese dynastic history. Even though Zhengzhou's ancient history and civilization can be dated back to the Bronze Age of the Shang and Zhou dynasties (1600 B.C.E. to 1046 B.C.E.), the question mentioned above about why the "central plains civilization does not become a cultural center" can be rephrased. Instead of Wang (2017, 91) claiming the reasons to be a lack of "cultural and intellectual talents" and failure to take advantage of Western modernization as Shanghai did as a metropolis, I argue that the railway—one of the significant infrastructure projects initiated from the late Qing dynasty to the Republic of China—marks Zhengzhou's transition from "central plains civilization" to socialist modernization. This shift is expressed through cultural identity and socialist infrastructural memory in the form of place-making and spatial practices.

Regarding the urban layout, Zhengzhou is spatially divided by the north–south Jingguang Railway and the east–west Longhai Railway that crosses the city. Seen in a tourist map during the late 1950s, the city planning was shaped and delineated in palpable edges along the main railway lines (Figure 1.5). On the other hand, the railway station of Zhengzhou serves as the main location to access public space and urban facilities such as People's Theater and Park, Department Store, the Erqi Tower Memorial Square, and movie theaters, among others. In addition, in 1953, the freight railway of East Zhengzhou was built. In 1956, Zhengzhou train station hall was equipped with a ticket office, skywalk, and underground tunnel. A series of train station facility constructions contributed to the modern customer service space as an integral part of the infrastructure for Zhengzhou's railway station.

Figure 1.5: Map of railway transportation network of China in 1950 and a tourist map of Zhengzhou (*Source* Zhengzhou official city map)

In view of the nation's strategic concern for the railway infrastructure network, Zhengzhou is integrated into the "One Belt, One Road" infrastructure project in terms of the European-Asian railway, which began operation on July 18, 2013, connecting Zhengzhou to European countries: Italy's Milan, Germany's Hamburg, and Finland's Helsinki. If industrial civilization embodies railway development, Zhengzhou, as a railway transport intersection of mainland China, experiences socialist infrastructure projects in ups and downs. In particular, the fixed memorial architecture of the railway as critical transport infrastructure — Erqi Memorial

Tower — conceals urban identity between the splendid ancient traces and socialist modernization, progressive temporality, and cultural spatiality. Although the geophysical convergence of railway lines characterizes the mobility and circulation of capital, humans, and energy, the essence of the infrastructural cultural practices consolidates as the power memorial symbolic and architectural space in Erqi Memorial Tower, which has long been underappreciated and overlooked.

Erqi Memorial Tower: Infrastructural Memory of Railway in Architectural Anecdotes and Cultural Narratives

A memorial tower dedicated to the historical and political event of railway construction circulates its iconic imagery for Zhengzhou's urban memory as both ideological, cultural, and consumption practices. However, the visual representations of memorial architectures not only consolidate values in socialist ideology and politics but also exist in ambivalent affections and enduring complexity regarding how we understand the nature of infrastructure space through its representations and aesthetics in architectural form, visual storytelling, and cultural landscape. Arguably, the infrastructure claims such ruptures in its discursive narrative of power dynamics that reimagine the city.

When national memory is constructed, portrayed, and imagined through monuments, their symbolic meaning delivers the imagery power to the public for ideological reasons, which involves political movements and changing laws (Miles 1997, 44). For Miles's elaboration on the monuments as the national cultural identity, it invokes the definition in Lefebvre's (1991) conceptual space of "representations of space" and "representational spaces" (34). Situated in the context of socialist China, on the one hand, it intensively contributes to socialist ideological formation and educational purposes in its legitimacy and official narrative of the nation's history.

On the other hand, the monuments for war memory and commemoration particularly articulate "the ruptures rather than coherence, in the WWII narratives and their manifestation in public space" in the Greater China regions (Pan 2021, 5). In this light, I consider the Erqi Memorial Tower (*February Seventh Memorial Tower*) to be a contested part of socialist history and manifest the ruptures of the city's modern identity formation. The Erqi Memorial Tower, situated in the center of the city, is dedicated to commemorating the Great Strike of February 7 in 1923, which was at the climax of the strikes of workers in modern China (the three main locations along the Jinghan Railway line of The Great Strike of February 7 include Zhengzhou, Changxindian in Beijing, and Wuhan). This unprecedented strike demonstrates the role of railway workers in historical significance concerning poor working conditions and modern awareness of labor unions. The Jinghan Railway Labour Union was established on February 1, 1923, by the Communist Party of China (CCP) and held its founding congress in Zhengzhou on February 1, 1923. Under the assistance of the Chinese Labour Union (established in 1921), the Great Strike took place from February 4 to 7 in 1923.[28] As a result, the failure of the Great Strike was caused by the violent armed suppression commanded by the warlord Wu Peifu (1874–1939) who sent 20 thousand soldiers. The Jinghan Railway Strike for liberty reflected the class struggles and "spread with the force of a hurricane throughout the

[28] Notably, The Morning Post 晨报, established by Liang Qichao 梁启超 and Lin Changmin 林长民, reported on the Jinghan Railway Workers' Strike on February 5, 1932.

whole country" (Wu 1992). The intensive historical background of the Great Strike of February 7, on the one hand, values the politics of the railway as infrastructural space to take in labor strikes in modern China. On the other hand, the nature of the labor movement in modern China is rooted in capitalism in an urban and imperial context. For example, the 1925 May Thirtieth Incident mainly took place in Shanghai with a series of strikes nationwide demonstrating the urban mass movement regarded as an anti-imperialism movement. At its core, the urban labor context reveals the essence of the May Thirtieth Incident:

> The May Thirtieth Movement also revealed some limitations of the mass movement cadres in organizing and mobilizing the urban masses in Shanghai. It shows that there were different responses towards the re-organized KMT's mass movement from various groups, and the influence of the mass movement cadres was largely limited to the students and urban labor. It is clear from the existing sources that the great majority of the masses who participated in the May Thirtieth Incident were young people. (Ku 1979, 213)

For the Great Strike of February 7 and the May Thirtieth Incident in the 1920s, the limitations and unfulfilled results reveal the CCP's inability to mobilize the urban masses and its failure to identify its position and power in the modernity of industrial capitalism. In this sense, although the Erqi Memorial Tower delivers its ideological value on the CCP's leadership for the Labour Union in socialist history, the essence of the labor movement with regard to urban conditions and capitalism is fully incompatible with Mao's tactic and strategy of "encircling the cities from the countryside,"[29] which involves occupying the city's center to fight against the imperialist powers as a revolutionary path to victory in the People's War. According to Lin Biao's (1907–1971, the Chinese Minister of Defense) 1965 essay "Long Live the Victory of People's War":

> "If North America and Western Europe can be called "the cities of the world," then Asia, Africa and Latin America constitute "the rural areas of the world"... the contemporary world revolution also presents a picture of the encirclement of cities by the rural areas .... Mao Zedong's thought is a common asset of the revolutionary people of the whole world. " (Lovell 2016, 8)

This contradiction and complexity between rural and urban in socialist revolutionary thoughts and legacy imply and underline the power struggles and definition for the Erqi Memorial Tower, further locating and valuing Zhengzhou's urban identity. In this light, the Great Strike of February 7 was not officially reclaimed in terms of ideological value until after WWII in its spatial form of museum and memorial architecture. Although Zhengzhou is only one of three locations with Beijing and Wuhan, it has been shaped by socialist legacy largely due to the Great Strike of February 7, both ideologically and incidentally. The memorial architectures of the Great Strike of February 7 are realized as the Erqi Memorial Tower and the Erqi Memorial Hall (which is 800 meters to the south of the Erqi Memorial Tower, where Pule Theater was established in 1913 for Beijing Opera performances). In 1972, the Erqi Memorial Tower defined Zhengzhou's skyline as a cityscape landmark (Figure 1.6). Regarded as the memorial architecture for the city's modern historical center today, its origin in construction and historical context unfolds Zhengzhou's urban

[29] Also seen in the "Selection Works of Lin Biao 林彪": "To rely on the peasants, build rural base areas and use the countryside to encircle and finally capture the cities — such was the way to victory in the Chinese revolution."

identity and memory for the representation of railway infrastructure in relation to urban infrastructure.

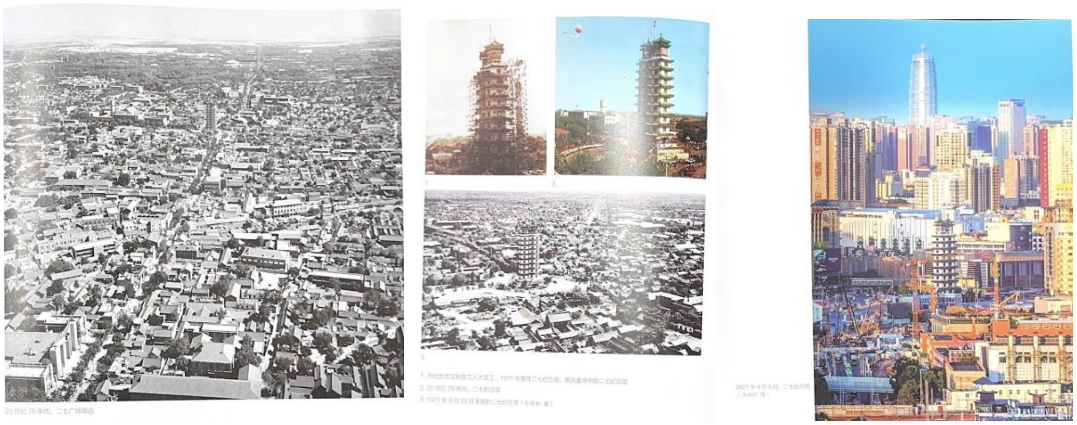

Figure 1.6: Photographs of the Erqi Memorial Tower since the 1970s (*Source* Zhengzhou City Archives)

The initial construction of the Erqi Memorial Tower was surrounded by an ambiguous and debatable narrative. The most widespread background story is that the first wooden tower, which was 15 meters tall, was not dedicated to the Great Strike of February 7, but served as a temporary landmark for the first National Urban-Rural Product Exchange Exposition in 1951. The remains of the tower were an accident due to its location near where the workers of the Great Strike of February 7 were executed. The wooden tower was supposed to be deconstructed after the expo. One of the most well-known and popular city towers is arguably the Eiffel Tower, constructed in iron and steel for the 1889 Paris Exposition as a temporary exhibit. While the Eiffel Tower is remarkably regarded as an architectural achievement for technological progress in the Western industrial era, the Erqi Memorial Tower tells the story of infrastructural transformation and tensions between rural and urban, industrialization and modernization, past and development from a local perspective, which is particularly rooted in the cultural and visual representation of railway infrastructure. Another version suggests that the wooden tower was originally dedicated to memorialize the Great Strike of February 7, proposed by party member Qi Dai, who suggested building a wooden tower with a red star on top. According to the former mayor of Zhengzhou (1956-1968), Wang Junzhi, the tower was for the memorialization of the Great Strike of February 7 but used the remaining wooden materials from the Expo due to financial hardship.[30] Despite the various versions of the original intention for the establishment of the tower, existing photographs display the propaganda slogan inscribed on the wooden tower as “Glory to the Chinese Party,” “Chairman Mao,” and “Victory to the Second Five-Year Plan” with a triangle-shaped top structure and a five-pointed star decorated on the spire. The tower in the middle of the round garden spatially and practically functions as a traffic circle (Figure 1.7).

[30] The anecdote comes from the article “Why was the Zhengzhou Erqi Tower built? A 105-year-old former mayor of Zhengzhou tells the story” (郑州二七塔到底因何而建?105 岁郑州老市长来讲述). Accessed March 22, 2023. http://news.china.com.cn/live/2020-07/21/content_890961.htm

Figure 1.7: The wooden Erqi Tower structure in the 1950s and the illustration of the Erqi wooden Tower in Zhengzhou Daily Newspaper (December 31, 1959) to celebrate the New Year of 1960 and propagate the hopes for the achievement of the Second Five-Year Plan before the Erqi Memorial Tower was built in the 1970s (*Source* Public Domain and *Zhengzhou Daily*)

In early summer 1971, the wooden tower collapsed after a rainstorm. Today's Erqi Memorial Tower was built when the Henan government commissioned the architect Lin Leyi (1916–1988), who was at that time sent down to Henan province from Beijing during the Cultural Revolution (1966–1976). The political and ideological impositions on the architectural design are reflected in the distinctions with other design projects of Lin Leyi. The planning for designing a new tower began in 1963, and construction started on July 1, 1971. In only three months, the Erqi Memorial Tower, 14 floors and 63 meters tall, was opened to the public on October 1, 1971. The distinctive design of the tower appears as a double-tower (viewing from North-South, a single tower from West-East) in ancient style reinforced concrete material (Figure 1.8).


Figure 1.8: The design drawing of the Erqi Memorial Tower by the architect Lin Leyi and the views from the front as a double-tower and from the side as a single tower (*Source* Photo by the author, 2023)

In the 1970s, an iconic photograph illustrates the Erqi Memorial Tower as the highest architectural structure in Zhengzhou's urbanscape, occupying the city's skyline (Figure 1.9). Rather than an industrial or modern landscape, the Erqi Memorial Tower echoes a classic ancient aesthetic and appreciation of local scenery as the top scenery of the "Eight Sceneries" of Zhengzhou County: "ancient tower under shiny cloud." Zhang Yue, the senior provincial government official of Zhengzhou in the Qing dynasty, recorded "The Eight Sceneries of Zhengzhou" in his 1915 Local Chronicles of Zhengzhou. The tower in "ancient tower under shiny cloud" is the 50-meter-tall Kaiyuan Temple Tower, built in 713 during the early Tang dynasty and destroyed during the Japanese bombing between 1938 and 1944.

A sketch of the ancient tower was recorded by architect Liang Sicheng (1901–1972) (Figure 1.10).[31] Towers embody the aesthetics of ancient urban planning embedded in the built environment in natural surroundings to overlook the city and gaze far. The Erqi Memorial Tower, although accidentally shaped as a tower, employs the ancient approach and aesthetics as part of the urban landscape. In one sense, the "eight sceneries" traditionally depicted in literati paintings and poems are for cultural memory and visual sights for settlement and tourists, with the selection of the "eight sceneries" for cities becoming popular in the Ming and Qing dynasties. Not only is it an ancient city landmark in historical and cultural environments (sensational elements and sensorial highlights) and affections, but it also delivers the distinctive aesthetics between the ancient and modern approaches to urbanscape. In the socialist historical context, the design of the Erqi Memorial Tower is an architectural form of the Cultural Revolution dedicated to the socialist memory of the railway labor movement led by the CCP. More than a political and ideological architectural property, the tower in Lin Leyi's design is a cultural symbol for poetic aesthetics in Chinese architectural form and urban fabric. In this poetics of spatial aesthetics, the tower-style resembles dual metaphors in both symbolic and architectural senses: 1) February 7 means 2·7, which is double 7 in the twin-towers shape. 2) The façade on one side is only one tower, while the other façade reveals two towers. As for my growing-up visual experience of the Erqi Memorial Tower, not only had I not visited the interior space until 2023, but also the spatial memory illustrated that it was only a functional urban space for circulating the city's daily traffic. In other words, it exists as an ordinary urban spatial production which is a familiar mundane imagery in urban life.

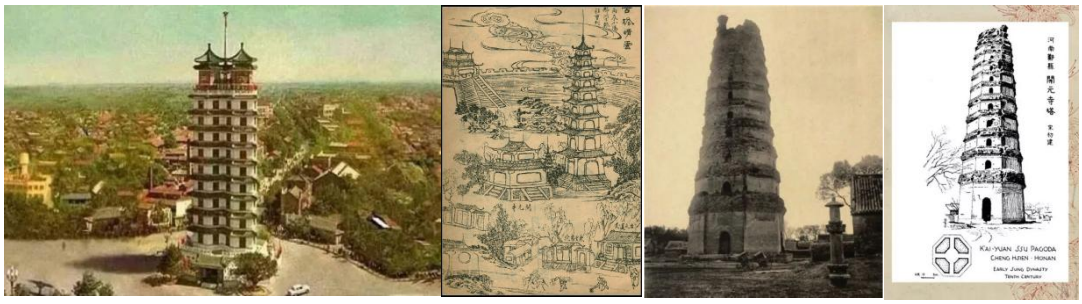

Figure 1.9: (left) The Erqi Memorial Tower occupying Zhengzhou's skyline in the 1970s (*Source* Public Domain)
Figure 1.10: The drawing of "ancient tower under shinny cloud"; the photograph of Kaiyuan Temple Tower in Zhengzhou appeared on French postcard in the early 1900s; the illustration of Kaiyuan Temple Tower by architect Liang Sicheng (*Source* Courtesy of Public Domain and the architect)

The historical transformation of the old wooden tower into the 1970 Erqi Memorial Tower also signifies the disappearance of the ancient Kaiyuan Temple Tower. This change spatially and visually represents the rupture from the past to socialist modern history, forming part of the modern infrastructure lineage for Zhengzhou's urban identity. The popular phrase says: "If you haven't visited the Erqi Memorial Tower, you haven't been to Zhengzhou." In fact, the symbolic meanings of the Erqi Memorial Tower have been largely transformed into visual representation, culture, and consumption. Both the imagery of the previous wooden tower and today's Erqi Memorial Tower become the most popular motif of Zhengzhou, which can be found

[31] The First People's Hospital of Zhengzhou 郑州市第一人民医院 was built in 1977 on the original site of Kaiyuan Temple Tower, marked as nation's modern comprehensive hospital, located north-eastern corner in the intersection between Dongda Street 东大街 and Sijingshan Road 紫金山路 in Zhengzhou.

in various material objects and visual forms such as daily supplies, reward credentials, souvenirs, and documents: postcards, stamps, thermometers, teacups, washbasins, ceramic sculptures, notebooks, badges and medals, grain rationing, calendars, paper bags, pass permits, cigarette cases as trademarks, displayed inside the Erqi Memorial Tower for its collection exhibition. An exhibition displayed in "The Memory of Zhengzhou · Oil Refinery Factory Creative Park"—remodeled and transformed from the previous Zhengzhou Oil Refinery Factory (established during the First Five-Year Plan in 1951)—showcases a large collection of material objects featuring various design forms of the Erqi Memorial Tower (Figure 1.11). The display is not a special event but only part of the historical visual materials of the city. Nevertheless, the abundant appearances featuring the Erqi Memorial Tower were a common cultural imagery of the city's landmark during Mao's China on the one hand; on the other hand, the cultural narrative of railway history was deeply popularized and abstracted in the circulation and familiarization of the relationship between the Erqi Memorial Tower and Zhengzhou's memory. How does this alter and shape the concept of infrastructure for both railway and urbanization in its visual representations? And how do we look at urban space and its identity through the lens of infrastructure in its visual representations and cultural formation?

Figure 1.11: Display of objects featuring the imagery of the Eriqi Memorial Tower (*Source* Photos by the author, 2023)

As monuments are cultural formations that maintain memory (Assmann 1995, 129), the imagery of the Erqi Memorial Tower in visual and cultural form demonstrates it as an ordinary daily motif circulating Zhengzhou's urban identity in socialist history, meanwhile compressing and integrating the imagery of railway infrastructure from architectural form to visual and cultural memory. The spatial narrative of the Erqi Memorial Tower is for the city's modern history and nominal urban center. Today, the Erqi Memorial Tower is spatially and visually trapped in shopping malls and other higher buildings. The spatial dimension of the Erqi Memorial Tower has been reduced since the 1970s after its completion. The surroundings of the Erqi Memorial Tower demonstrate the fast-changing urbanization process in degrading the historical meaning of the Erqi Memorial Tower. Not only the demolition of the old tower for a new one, but the railway culture embodied in the tower as a landmark was overwhelmed by the economic boom and shopping malls in the 1990s. In 1989, Asia (Yaxiya) shopping mall was opened as a phenomenon called the "Business War" in the central plain of China, making the modern business model that had an

impact on China. The business model was advanced at that time, providing 95% discounts for all items, advertising on CCTV (China Central Television) labeled as the first one at that time, opening branches, then in 2000 facing bankruptcy. The market capitals, after the open-door policy, reformed the spatial orientation of the city. The advertisement phrase says: "Where to go on Sunday? Zhengzhou's Asia Shopping Mall." More than the location, the geographical identity of Asia, the shopping mall utilizes the rising sun for hopes and future. In 2020, the Erqi district government of Zhengzhou proposed to demolish the surrounding buildings to acknowledge the spatial significance of Erqi Tower. The new planning is up in the air due to controversial mass demolition and relocation issues. In 2023, Yaxiya shopping mall reopened. The location of Erqi Memorial Tower is now more of a capital contest as a business district and for real estate. This also gives a sense of the negotiation of power over urban identity in its modern historical memory and urbanizing process.

Zhengzhou's Modern Urban Identity in the Shadow of Infrastructural Memory

The history of Zhengzhou is separated into two official historical linear narratives: one recorded in its ancient historical past as the main place for China's central plain civilization; the other is the socialist modernity initiated by the CCP and narrated in the labor movement of the Great Strike of February 7, centered in the modern infrastructure space of the railway. The former acknowledges a continental cultural legacy and identity as the central location for civilization, wars, communications, and trade. The latter, in the name of modernity facilitated by transport infrastructure, transforms Zhengzhou in its new role for its socialist urban identity. Parallel to the intersection of the nation's railway network, Zhengzhou's geological location also historically constructs the waterway network of the Yellow River as a central transport position since the Warring States period (476–221 BCE) and the Sui dynasty (581–619). Subsequently, from ancient waterway to modern railway, Zhengzhou's regional development performs and practices its mediating zone as transport infrastructure. In this context, the Erqi Memorial Tower connects the ancient history and identity of Zhengzhou to its imagery in socialist urban modernity in railway infrastructural memory. As an ongoing urbanizing process for Zhengzhou becoming a future megacity in the central plain of China, in the district of the Zhengzhou economic zone, there is new architecture: the Happiness Tower of Central Plain, 388 meters tall, which claims to be the world's tallest iron structure tower. The tower features signal transmission, tourism, conferences, and festivals. This modern tower calls for a new cultural representation of modernity in Zhengzhou, even Henan province.

The modern identity of Zhengzhou as part of Henan province historically narrates a political proposition: "Great Bright and Spectacular Hope," which featured on the first page of *People's Daily Newspaper* on October 11, 1975. This great and bright vision for Henan province was followed by "centers on agriculture industry and industry for promoting agriculture purpose." After the open-door policy, in 1992, Zhengzhou was approved as an inland open-up city operating the same policies as the coastal cities. As of today, Zhengzhou Commodity Exchange was the first standardized Futures Exchange established in March 1998, highlighting the agricultural price as a significant reference for world market prices. On June 5, 1996, former Chinese president Jiang Zemin (1926–2022) gave an inscription for Zhengzhou: "Constructing Zhengzhou as a socialist modern trading city." Gaining

its international recognition as early as 1912, Japanese economist scholar Hayashi Chōjirō praised Zhengzhou as "Eastern Chicago, the largest traffic crossroad of China" in his *Business Information in Henan Province*. In 2022, Henan's GDP ranked 22nd, aimed at developing into one of the New First-tier Cities. Zhengzhou is more than the speed and modernity in railway infrastructure; it also symbolizes infrastructure disaster as counter-infrastructure. In the next chapter, I elaborate on the contested urbanization and urban identity of Zhengzhou from Green City to Sponge City in relation to the 7·20 Henan Floods (2022) and factory as counter-infrastructure for Henan province.

CHAPTER 2
The Shadow of Infrastructure: Zhengzhou from Green City to Disaster Infrastructure

"I am not loving here, I was just born here."
— *Factory*, Zhang Fangzhao (The God of Henan Rap)

While the railway is the most critical transport infrastructure shaping Zhengzhou's modern identity from hegemonic, ideological, and contested perspectives—as well as a critical part of China's historical transformation—Zhengzhou's urban memory and emerging identity also reveal the shadow side of infrastructure. This includes the lineage and rupture of the "green city" for Zhengzhou and other emerging identities related to labor and production associated with national and global capitals. Additionally, it reflects an emergent condition where infrastructure space manifests, narrates, and stimulates: sponge and smart city, COVID-19 pandemic context, and Foxconn factory. Chapter 2 develops Zhengzhou's infrastructural narrative, shifting from the railway as dynamic memorial power to urban infrastructure as unfinished and shadow counterparts.

A Micro-History of Zhengzhou: The "Green City"

Growing up in Zhengzhou, I recall that my hometown was once called the "Green City." Before I was seven years old, during the hot summertime, there were towering trees on both sides of the streets where citizens could enjoy the coolness rather than endure the burning sun as many rode bikes. Today, "Green City" largely lives in black-and-white photo archives and people's memories. Even though there are still plane trees left on the sides of narrow streets in the old town area, the rapid and dramatic urbanization process that started in the late 1990s has removed a huge number of trees, and the Green City no longer deserves its name as it once did.

The urban planning history of Zhengzhou provides a lens to approach the initial socialist infrastructural memory of Green City. Against the backdrop of the First Five-Year Plan period, Zhengzhou (as well as Luoyang in Henan province) was designated as an industrial city in the first group of modern urban development. In the initial urban planning of Zhengzhou, Soviet Union architect expert A. S. Mukhin (1900–1982), who stayed in China from April 1952 to September 1953 and supervised several of China's city planning projects, proposed that the railway station be the central location of Zhengzhou, leading to the provincial government office building as the main boulevard. All the other roads (north-east and south-west) were constructed from the main boulevard, which was similar to the layout of Moscow.[32] Although Mukhin's proposal was not fully implemented, the railway station plays a fundamentally central spatial role in Zhengzhou's urban space construction. In spring 1954, Pan Fusheng (1908–1980), the first secretary of Henan province, suggested changing the road direction to a north-south axis in terms of Chinese ancient city construction in an ideal layout, such as seen in Zhengzhou in

[32] Li Hao 李浩, Soviet Union Architect Мухин's Technical Support and Impact on Chinese City Planning 苏联专家穆欣对中国城市规划的技术援助及影响, 2020, Urban Planning Forum 城市规划学刊, pp. 102-110. There is few record of the Soviet architect Мухин, only occasional recorded in urban planning work in his visit in China. "On December 22, 1952, People's Daily published Liang Sicheng's article "Soviet Experts Helped Us Correct Our Architectural Design Thinking." In the article, Liang Sicheng specifically pointed out the assistance his thoughts received from the ideas of care for people, service to people, and humanitarianism proposed by Soviet experts Мухин and Akov.

the Shang Dynasty (1600–1046 B.C.) for north-south axis order in cosmological ideology. In the initial stage, the urban planning of Zhengzhou claims its role as one of the significant urban construction projects in socialist China, both as the nation's transport central location and in a spatial practice of industrial modernization for constructing the city. On the other hand, the socialist urban construction does not fully reject the cultural past that questions the urban planning of what the socialist modern city is. Thus, although designed as an industrial city, Zhengzhou also claims its urban dynamics and variations in its initial city layout and road planning.

In 1965, responding to Mao's propaganda and mass mobilization of "Making Green the Motherland," Zhengzhou became one of the most active cities planting oriental planes (Platanus orientalis) as an integral green space of road infrastructure. The plane tree, introduced from Shanghai's French Concession and Nanjing in 1951, saw more than two million planted in Zhengzhou, which led the city to be praised as a "Green City" in December 1958 at the Nation's Urban Greening Conference in Beijing.[33] First, in the socialist historical context during the Great Leap Forward, "Making Green the Motherland" was on a progressive incline, calling for liberating the masses' minds to plant trees in a mode of competition and ambition for socialist environmental construction. In detail, the general progressive goal for most cities was greening urban areas in one year and greening suburbs in two or three years.[34] Such ideological greening construction reflects the urban identity in pursuit of modernity for socialist China:

> As the post-1949 era could not be discussed separately from the pre-1949 one, this paper puts the two aspects together, viewing Chinese modernity as the progressive new identity pursued under Western influences. In this, greening played an important part, as the objective of achieving modernity was pursued through it, i.e. a modern nation is green. An analysis of the greening movement therefore also helps to increase the understanding of Chinese modernity. (Zhao and Woudstra 2012, 312)

Considering green infrastructure as the spatial practices resulting from the "greening movement" for Chinese modernity, greenscapes of streets, parks, and gardens are essential parts of urban infrastructure featuring shared public space. In 1984, Zhengzhou's green coverage ratio reached 35.25%. The view from above and various angles of shots showcase Zhengzhou's urban modernity in the 1980s propaganda documentary *The Ballad of Green City* (lücheng changxiangqu),[35] which is an outlook of the urban transformation from Mao's China to post-socialist China. From aerial images to close-up shots, the documentary deliberately exhibits the panoramic views of Zhengzhou's urban infrastructure including main roads, street views with green belts, four major city parks, exteriors and interiors of buildings, as well as numerous master plans of city maps and miniature architectural models. The simple storyline of the documentary unfolds the trip of the protagonist, an overseas Chinese man (who has not been back for 40 years) with his daughter in Zhengzhou and a few other tourist sites in nearby areas. Throughout the film, the female urban planning engineer comes across the returned overseas Chinese man on the plane, then introduces them to the urban development in industry, economy,

[33] The official document is titled "Notice from the Ministry of Forestry Regarding the Launch of a Large-Scale Mass Greening Campaign This Winter and Next Spring" (林业部关于今冬明春开展大规模的群众性绿化运动的通知). https://www.gov.cn/gongbao/shuju/1958/gwyb195801.pdf

[34] People's Daily, 人民日报, March 1, 1968, https://govopendata.com/renminribao/1958/3/1/2/

[35] The film was commissioned by the Zhengzhou City Urban Planning and Environment Department.

public services, and future planning outlook. The man exclaims several times expressing his strong feelings towards his hometown: “It is indeed a green city” and “What a wonderful city” (Figure 2.1). *The Ballad of Green City* visually archives, recognizes, and echoes Zhengzhou as Green City in its modern imagery as well as its imagined urban future. Regarding the background story of filming *The Ballad of Green City,* it was a special short feature dedicated to the sister city relationship between Zhengzhou and Urawa-shi, Japan (no longer existing and merged into Saitama in 2001) in 1988.

Figure 2.1: *The Ballard of Green City*, 1984/1985, film screenshots, 35’59’’ and 37’09’’ (*Source* Screen shots from *The Ballard of Green City* [1984/1985], Xi’an Film Studio)
Figure 2.2: The feature report of Zhengzhou’s Green City (*Source* China Pictorial, October 1972)

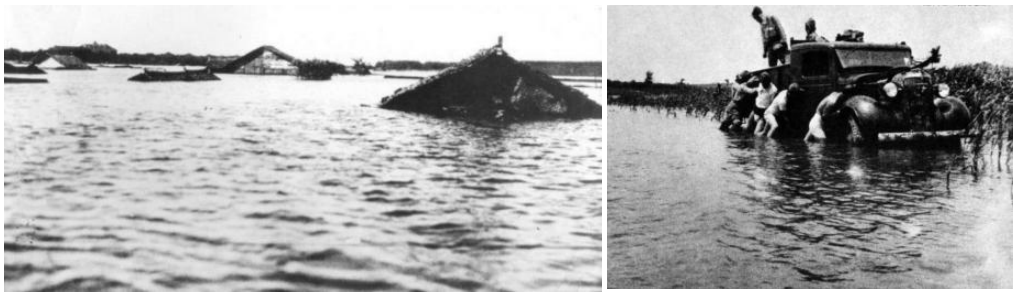

Figure 2.3: The flood overflowed villages after the Huayuankou Dam, trapping the Japanese army in the flood.

Most photos featuring Zhengzhou as the Green City were taken in the 1970s and 1980s, showing abundant green trees dominating the cityscape from an aerial view. One popular origin story of the Green City name comes from a government leader’s acclaim. He called Zhengzhou a “Green City” after seeing a similar aerial view during a flight. In regard to the official record of Green City of Zhengzhou, it was reported in China Pictorial (October 1972) to highlight the city’s green corridor in the transforming Zhengzhou as a new industrial city after 1954 (Figure 2.2). In socialist China’s narrative, Green City demonstrates the transformation of the environmental condition in Zhengzhou, which suffered from sandstorms in the Yellow River Basin largely due to the 1938 Huayuankou Dam Burst Incident—a man-made flood disaster caused by the National Revolutionary Army (NRA) under the order of Chiang Kai-shek (1887–1975) to destroy the dikes to slow the Japanese army’s invasion of Henan during the Second Sino-Japanese War (part of World War II) (Figure 2.3). In this modern historical context, Green City not only glorifies Zhengzhou’s ecological modernization but also frames the infrastructural disaster aligned with natural forces (such as river, flood) as a deconstructing power for the city and region. In other words, the Green City of Zhengzhou encompasses this temporary man-made infrastructural disaster and its enduring impact as a socialist

legacy on environmental education and ecological governance:

> After the breach was closed, the CCP focused instead on mobilizing riverine communities to battle against the river, and proved quite adept at championing local knowledge and using both political education and the self-interest of people living near the river to enlist popular support for dike-repair and river-crossing campaigns. (Edgerton-Tarpley 2017, 170)

Together, the Green City of Zhengzhou, filmed in *The Ballad of Green City*, serves not only as green infrastructure for constructing urban modernity but also as an integral part of socialist China's infrastructural projects towards constructing a socialist utopian future. As revealed in the 1958 prototypical propaganda film *The Ballad of Ming Tomb Reservoir* (shisanling shuiku changxiangqu), the reservoir as the essential infrastructural entity values and configures the spatial narrative of socialist infrastructural progress for future imaginations. The future in science fiction narrative is intensively and dramatically illustrated in Zheng Wenguang's 1959 unfinished novel *Ode to Communism* (Gongchanzhuyi changxiangqu), which unfolds the socialist future after 20 years in 1979, where the fantasy of technologies is presented in a series of massive infrastructure projects such as the Qiongzhou Strait Levee connecting Guangdong province and Hainan Island, artificial little sun, Mars Spaceship, etc. Approaching the end of the imagination, this technology-driven revolutionary progress of socialist utopia suddenly ends with the propagandist Wu Keling returning to his hometown in Henan province to visit the people's commune. The final destination in Henan province traces the people's commune in its real model with a hydraulic infrastructure project: the Red Flag Canal project (constructed from February 1960 to July 9, 1969). The Red Flag represents Mao's triple-thought: socialist mass line, the Great Leap Forward, and People's Commune. Based on the socialist hydraulic infrastructure of transferring water resources, the Red Flag Canal reflects the capital construction in socialist China's exploration through massive labor force, ideologically imposed mobilization, and engineering attempts, which is the primary historical background for China's infrastructure legacy and achievements in politics, aesthetics, and cultural narrative today.

The socialist legacy of infrastructure projects in Zhengzhou and Henan Province positions the region as a key mediator for China's infrastructure strategy. A prime example is the "South-North Water Transfer Project," proposed by Mao Zedong in 1952 during his inspection of the Yellow River. Henan plays a crucial role in the project's middle water-transfer line, ensuring water quality from Danjiangkou Reservoir across the Henan-Hubei border. This involves extensive supporting facility construction and population displacement along the water line. The Green City is intrinsically tied to a water-centric narrative that includes rivers, floods, and hydraulic systems. This connection is crucial for understanding the spatial modernity of its infrastructure within the context of political power dynamics and cultural frameworks.

Today, a public square in Zhengzhou named "Green City Square," next to the Zhengzhou Museum, was constructed in 1986 and opened in 1987, transformed from a cornfield. Rather than revealing any further meaning of Green City, the city square functions as a general public space for citizens. Instead, the representation of Green City coexists with Eriqi Memorial Tower in visual representation for

Zhengzhou's urban identity, seen in the popular commercial product by Zhengzhou Cigarette Factory (Figure 2.4). Thus, the dual essential modern identities unfold Zhengzhou's infrastructural space from two aspects: political legacy (railway) and ecological ideology (Green City). The former is the significant transport infrastructure network for connectivity and mobility of socialist China, while the latter reflects a more subtle and utopian (or dystopian) vision as green infrastructure to approach Zhengzhou's urban memory and modernization.

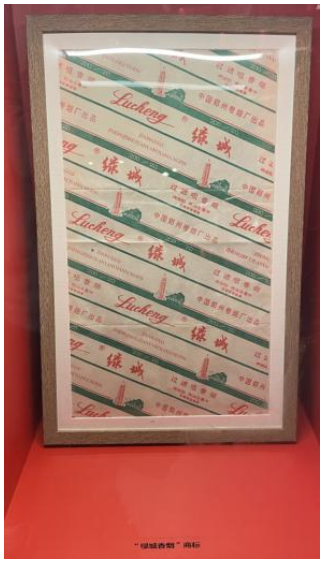

Figure 2.4: The trademark logo of "Green City Cigarette" displayed in special exhibitions in the Erqi Memorial Tower (*Source* Photo by the author, 2023)

Unfinished Infrastructure: The Disappearance of Roadside Trees and Daily Road Maintenance

My childhood memories trace the street plane trees as tall, with lush green leaves covering and forming a green tunnel during the summer, shielding from the sun's burning heat, and turning golden in autumn during the early 1990s. Until the late 1990s, a street-widening project for urban expansion resulted in many trees being cut down in a short period. Urbanization was speeding up, mainly through expanding roads, which led to the demolition of thousands of trees. However, several narrow streets still retain the tall plane trees, preserving the street view of the main streets from the past (Figure 2.5). Thus, Zhengzhou gradually and eventually lost its reputation as a "Green City" due to the green space not matching the progressive urbanization process. Instead, the greening campaign in 1997, initiated by the municipal government, promoted the concept of a "Landscape Garden City" as a remedy and to balance the green space of Zhengzhou (Yang et al., 2021).

Figure 2.5: The street view with tall plane trees remaining (right) in Zhengzhou and the oriental plane trees on Jingwu Road (No. 5 Latitude Road) in the 1970s (left) (*Source* Photos by the author, 2023)

Frequent and ongoing road construction, renovation, and maintenance in Zhengzhou reveal an alternative "green" streetscape of construction fences (Figure 2.6). The narrow streets become even harder to navigate due to traffic crowded with cars and electric bikes. Road construction usually takes a long time because different departments do not collaborate and operate their schedules separately. The green fence with a grass pattern serves as artificial decoration.

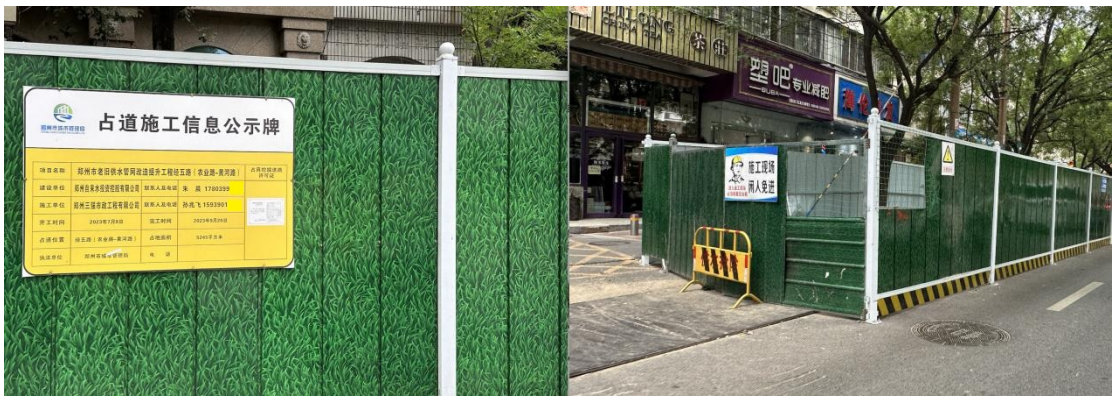

Figure 2.6: The street view of temporary road fences with a green grass design (*Source* Photos by the author, 2023)

Behind the visual representation of road construction and maintenance lies an unfinished urban infrastructure project reflecting public interest, capital circulation, and spatial fix. There is a widespread folk phrase that says, "Zhengzhou Zhengzhou, digging ditches every day, a day without digging is not Zhengzhou."[36] The troubled road conditions present as blocked traffic and accumulated rainwater in a repetitive mode. The confusion particularly stems from road construction and repair implemented by different official departments with multiple road diggings and blockages. Even worse, different departments conduct individual constructions. In this regard, the street construction zone is a crucial and constant part of green infrastructure for public interests and public life. David Harvey's (2002) spatial fix theory explains the central idea of infrastructures in their operation and maintenance. After the completion of urban infrastructure in the daily context, such as roads, built

[36] In Chinese: 郑州郑州，天天挖沟，一天不挖，不是郑州

environments are in a constant state of change. In Harvey's notion, the material condition is not a negative asset but the essential element of capital circulation operated and manipulated by local governments, capital, and other actors. In this process, the latent crisis is always forming in the next circulation:

> This leads to one of the central contradictions of capital: that it has to build a fixed space (or "landscape") necessary for its own functioning at a certain point in its history only to have to destroy that space (and devalue much of the capital invested therein) at a later point in order to make way for a new "spatial fix" (openings for fresh accumulation in new spaces and territories) at a later point in its history. (Harvey 2002, 25)

The "Green City" of Zhengzhou exists in the construction fences of road maintenance for pipe or gas systems, as well as in the circulation of capital, suspended plans, and inconsistent actions. Typically, the maintenance of older urban infrastructure occurs on narrow roads for months or years, worsening traffic conditions and forming a decade-long daily roadscape. While in the aftermath of war, the maintenance of urban infrastructure signifies hope, daily maintenance in public spaces constructs an enduring infrastructure landscape. From landscape to the materiality of urban repair, road maintenance involves a systematic articulation of infrastructure in economic, social, cultural, and ecological forces: "Maintenance at any particular site, or on any particular body or object, requires the maintenance of an entire ecology: attending to supply chains, instruments, protocols, and social infrastructure, and environmental conditions." (Mattern 2018)

In the case of Zhengzhou's road maintenance and repair, it is an urban phenomenon where the roadwork becomes the visible infrastructure site not only when it breaks (Leigh-Star 1999), but also where the politics of repair involves knowledge, labor, uneven social and spatial conditions, and disruption in urban life and contemporary "globalized" cities (Graham and Thrift 2007, 18). On the other hand, the disaster and collapse of infrastructure are both a slow process and a sudden happening. From Green City's material and cultural reputation to updated technology and digitalization-oriented urban planning, the disaster dimension of infrastructure in Zhengzhou deeply exists and emerges in the construction and promotion of Sponge City and Smart City. The road conditions, underground tunnels, and subway systems together form the material basis for how extreme rainfall, forming floods in its liquid form, results in water-based disasters in Zhengzhou.

Disaster Infrastructure in Rainfall and Flood: From Green City to Sponge City (Smart City)

The construction of the Sponge City of Zhengzhou, initiated in 2016, emphasized rainwater capacity. Unexpectedly and ironically, the 2021 Henan floods, due to heavy rainfall in an hour, resulted in 302 deaths—292 in Zhengzhou—and over 50 missing people. In Zhengzhou, there were 14 victims on the No. 5 metro line who got trapped in carriages for more than an hour. Twelve victims drowned in the northern tunnel of Zhengzhou Jingguang Expressway. In this catastrophic process, roads, tunnels, and underground metro lines became the medium to manifest the consequences of this intensive disaster of extreme weather as part of climate change. According to the Investigation Report on "7·20" Heavy Rainstorm Disaster in Zhengzhou, Henan, despite the climate element, the lack of official emergency response was the main cause of casualties and economic loss. From local to national

large infrastructure project concerns, the floods' potential threats were seen in "the safety of downstream Zhengzhou urban area and the Beijing-Guangzhou railway line and the South-North Water Transfer Project."[37] The Investigation Report deliberately summarizes the overall deficient urban infrastructure of Zhengzhou, which resulted in the 2021 Flood:

> Rainwater pipelines are over 2400 kilometers long, which is less than half the length compared to cities of comparable built-up area; of the 53.48 billion yuan planned investment in the sponge city construction project, only 19.63 billion yuan has been invested, of which only 32% is actually related to the sponge city, and nearly 56% is used for landscaping, greening, etc. Even during the critical moment when forces were mobilized nationwide to support Zhengzhou in rescue and disaster relief, efforts were still being made to "repair flower beds"; during the "13th Five-Year Plan" period, the renovation compliance rate of drainage open channels and other facilities was only 20%, with some drainage pump stations located in low-lying areas prone to flooding and failure. The flood drainage capacity of subways, tunnels, and overpasses is insufficient. The evacuation platforms between subway sections mainly consider fire and smoke prevention without considering flood prevention. The spillways of reservoirs are blocked, and safety hazards such as urban water accumulation points have not been eliminated for a long time. Backup power sources for public facilities such as hospitals, water supply, and communication are mostly located underground and lose their disaster preparedness function once they are flooded. (39)

The investigation report points out the imbalance of input for the construction of the Sponge City, with the green landscape where street gardens occupy 56% of the budget. On the one hand, Zhengzhou's progressive urbanization contributes to its identity as an emerging megacity of China. In this context, the urban infrastructure is considered to be upgraded and renovated to support its development as well as serve as disaster prevention instruments. On the other hand, in this specific flood disaster analysis and narrative, invisible infrastructure for the Sponge City's rainwater capacity is overshadowed by the visible green infrastructure of urban greening and landscaping. Furthermore, the roadscape has long been mocked as "watching the sea in the city," indicating lasting concerns about the failure of the underground urban infrastructure, which includes drainage and water pipes. These urban problems have been identified as common failings in urban development:

> The implementation of disaster prevention and mitigation requirements in urban planning and construction is inadequate, which is a common problem in many places. Every year during the rainy season, the phenomenon of "watching the sea in the city" repeatedly occurs, reflecting a deviation in the performance view of some leading cadres. There is a significant gap in fully and accurately implementing the new development concept and coordinating development and safety, failing to incorporate safety work into every aspect and field of urban work and urban development.[38]

Based on this official reflection, the 2021 Henan Flood, the "disaster once-in-a-century," constantly recalls the problematic urban planning and natural forces with catastrophic effects (particularly recent frequent climate change issues) as integral

[37] Ibid. p. 5.
[38] Ibid, p. 39.

parts to consider in urban infrastructure space. The ecological ramifications of Zhengzhou's urban infrastructure embody the transformation from "Green City" to "Sponge City" in ideological narrative, social and economic developments, and cultural dynamics. The shadow of infrastructure space for Zhengzhou, as well as Henan province, further manifests in its labor where the smart city (often constructed as a new district, separate from the city's old town center) exists in the circulation of global capital, which was intensified and collapsed in the COVID-19 pandemic context.

Disaster Infrastructure: Foxconn Factory Labor in Global Capitals and *Fangcang* for "Temporary Dystopia"

The industrial modernization of Zhengzhou, designated as the new capital city of Henan province in 1954 during the First Five-Year Plan (1953–1957), featured heavy and light industrial factories. These included five cotton manufacturing factories in the western suburbs of Zhengzhou, supported by immigrant workers (cotton spinners) from Shanghai and Jiangsu province. However, Zhengzhou has long lagged behind other cities in GDP ranking, placing only 15th in 2019 and 16th in 2022.

Manufacturing factories for economic development and growth of Zhengzhou are claimed as critical infrastructure, combining factory buildings and special economic zones in the new district. Zhengzhou New District, operational since July 18, 2009, and covering 1,840 km², consists of Zhengdong New District, Zhengzhou Economic and Technological Development Zone, Zhengzhou International Logistics Zone, and Zhengzhou Airport Economy Zone (Figure 2.7). The Foxconn Factory zone, established in 2010 and located in Zhengzhou Xinzheng Comprehensive Bonded Zone (Zhengzhou Airport Economy Zone), makes Zhengzhou the world's biggest iPhone factory. Here, the frontier of Apple's digital production is not in Silicon Valley, California, but in the factory infrastructure in Zhengzhou (Xinzheng), central China.[39]

Figure 2.7: The main gate of Zhengzhou Xinzheng Comprehensive Bonded Zone (*Source* Photos by the author, 2022)

[39] In 2021, I received a package containing my iPhone, which I had ordered from an Apple store in San Francisco, California. However, the package was shipped from Zhengzhou, Henan province—my hometown. This was the first time I realized how the global infrastructural network locates myself and my identity.

For the huge special economic zone, the official statement of future vision is "Great Junction, Great Industry, Grand Metropolis": Junction for transport infrastructure, Industry for global capitals, and Metropolis for emerging megacity infrastructure. In this economic infrastructural zone, Zhengzhou's Foxconn Factory, particularly assembling iPhones, produces half of the total output. The mega-transnational corporation has to be localized in regional conditions and in relation to local regional strategic economic development: the global capital of Foxconn in Zhengzhou facilitates this mode from a labor-intensive perspective. For Henan province, with one of the largest populations in China, the Foxconn Factory provides a huge number of employment positions as well as foreign trade volume. In 2020, the total export amount of Foxconn was 316 billion dollars, 80% of Zhengzhou's total foreign trade and 60% of Henan's foreign trade. Modern factories are essential architectural infrastructures in capitalism, capturing identity, culture, and locality in time and space. The fundamental engine of the Foxconn factory in Henan is its enormous incoming labor force, which is the factory of temporary capital utopia. At its heyday, Foxconn factory workers on assembly lines numbered up to three hundred thousand and were in frequent flux.

Encountering the COVID-19 pandemic in 2022 with lockdown and "silent period," factory workers were reduced to three hundred thousand. Particularly in October 2022, uncertainty, anxiety, and disorder emerged as a chaotic "escape" from the Foxconn factory. This spatial crisis of Foxconn was caused by the fear of COVID-19, resulting in an unpredictable situation for bio-power due to a lack of medical care, quarantine measures, testing facilities, daily supplies, and the dilemma of individual mobility. In the process, a group of factory workers left and undertook a long journey home on foot. On their way home, people in Henan province provided supplies such as water, food, and fruits to assist the escaping factory workers. In this event and protest, the Foxconn factory became a disaster infrastructure for pandemic spread and was enclosed under exceptional circumstances. The protest at the factory and the escape from it were more spontaneous activities rather than organized ones. The disaster converges the pandemic fear and the factory's liminal space, which "the transgression exposes the limit as limit" (Leah 1997, 17). Transgression (Foucault, 1977) validates specificity and difference, discerns the limit, and challenges the boundaries (Leah 1997, 17–18). In the case of the Foxconn factory and in the COVID-19 pandemic context, the factory as disaster infrastructure consolidates the notion of transgression in the physical bodies of factory workers from individuals to collective, and empowers the transgression of the limits of space and regulations in its very conditions beyond labor identity affiliated with the factory infrastructure. The unbound labor from the factory infrastructure uncovers the politics of intimacy among factory workers. In other words, the factory as capital infrastructure manifests internal structural violence, while natural forces (such as the COVID-19 pandemic) reclaim and complicate this violence within and beyond planned violence. In the end, the Foxconn factory protest aligned with the easing of COVID-19 pandemic restrictions and regulations approaching November and December of 2022.

In the modern history of industrialization, factory infrastructure is an iconic and primary cinematic narrative in Charlie Chaplin's classic 1936 black-and-white comedy film *Modern Times*, which features a steel factory's assembly line. The mechanized space for the alienation of humanity in the industrial age begins, with

labor forces and labor crises as an integral part of the factory infrastructure landscape—a social, individual, and collective reality. It is still relevant, intensifying the modern workers' factory life to understand and manifest infrastructure in contemporary times. In fact, today's high-tech or industrial products often rely on manufacturing workers.

China has been claimed as "The World's Factory" since becoming a member of the WTO in 2001. It has been deeply involved in and has changed the world's economic structure. The massive industrial infrastructure landscape in China is visually revealed in Edward Burtynsky's 2006 documentary "Manufactured Landscapes." The assembly line labor manifests the elementary components of products from world brands such as Nike, to the recycling of electrical materials (e-waste such as mobile phones and computers) that, for instance, from Silicon Valley in California, end up in China. Beyond the industrial civilization of sublime magnitude and awe, the overwhelming endless industrial reality empties what the infrastructure landscape is in quiet mundane and slow violence. The essential critique comes to the individual factory condition in this infrastructure context. Chinese artists such as Cao Fei deliver the individuality out of capitalized collectiveness in the factory. In Cao Fei's 2006 documentary "Whose Utopia," she films immigrant workers of the Osram lighting factory in China's Pearl River Delta region and their performances. Against the background of capitalized and standardized assembly line space, individuals' dreams and desires ask "whose utopia" in contemporary Chinese society. "Whose Utopia" primarily places the factory workers in an urban context: their dreams alive from the factory out of poverty rooted in the countryside. Or, it is urban dreams, for individuals as a collective of factory workers. Meanwhile, against the backdrop of the machinic landscape and automation, a speculative future for factory workers in China emerges.

The modern façade of Henan province belies its complex reality. The factory-infrastructure landscape reveals a stark contrast, embodying violence, raw emotions, and the desperate flight from rural poverty, environmental degradation, and economic hardship. In the 2024 viral rap song "Factory," written by The God of Henan Rap (real name Zhang Fangzhao, born in 1997 in Jiaozuo, Henan province), the rapper ironically expresses, through abstraction and exaggeration, the split identity of Henan province: belonging to one's birthplace and escaping from one's hometown. The lyrics highlight: "I am not loving here, I was just born here" (Figure 2.8). "Here" literally represents the rapper's hometown in Henan, but more importantly, it manifests the location and spatiality of Henan province in both its reality and affective dimensions.

On the one hand, rap and hip-hop have become some of the most popular cultural phenomena in mainland China in recent years, thanks to rap competition shows such as "The Rap of China" since 2017. Though rap in dialects such as Sichuan, Dongbei, and Beijing claims the mainstream of rap fashion, Henan is by no means getting attention. However, as the earliest rap on public TV programming, "The Urban News" (2007–2008), produced by Henan Television Urban Channel, already employed rap for reporting news in two-minute segments. The rap song "Factory" arguably marks the first time Henan province gains widespread public attention through popular culture—particularly rap music—for its identity shaped by the harsh realities of industrialization and the traumatic experience of the factory

landscape. “Factory” continues The God of Henan Rap’s style, which is “emo rap” (originated in the United States in the mid-2010s), particularly welcomed in the youth market for self-expression with ideas, emotions, and sensibility. In the music video for “Factory” the visual narrative portrays a factory landscape consuming villages, leaving behind dust, ruins, and construction sites. For young people, escaping their hometown becomes a symbol of hope for a better life. This imagery highlights the tension between capital and roots from a grassroots perspective. Such controversial and ambivalent cultural identity of Henan for young people is both an infrastructural reality and a lingering emotion. Henan, as its name in representation, occupies traumatic memory and destiny in the age of infrastructure. In such stigmatized identities of farmers and factory workers, the cultural identity of Henan province is conceived. In this lineage, rap serves as cultural representation in the industrial infrastructure landscape between village (or county) and city, local and global, Henan and China. The flamboyant name “The God of Henan Rap” is the response to regional bias and how cultural identity is constructed and reconstructed for individuals and Henan province.

Figure 2.8: *Factory* official music video featuring the rapper (the “God of Henan Rap”), his mother, and neighbors (*Source* Screen Shots from *Factory* [2024], Zhang Fangzhao)

In the time and space of the COVID-19 pandemic, the factory as disaster infrastructure intentionally and dramatically transformed into Fangcang hospital (centralized isolation facility). This temporary architectural form of isolating apparatus can be traced back to Venice’s Black Death (1346–1353), establishing the modern quarantine space for pandemics such as dozens of islands and isolation hospitals. In the modern history of pandemics, from Angela Ki Che Leung’s (2009) study of leprosy in political and cultural implications in the context of China's Sino-Western approach and Liu Shaohua’s (2019) investigation of leprosy knowledge, prevention, and politics since post-imperial China to socialist China to the long-impact strategy of blood plasma economy (1991–1995) in Henan’s AIDS villages in impoverishment, disaster infrastructure in China and Henan province remains unsettling in spatial nature. It first resonates with Foucault’s notion of heterotopia, which hospital applies multitude metaphors and interpretations in disease knowledge, architectural design, and philosophical existence. The construction and application of Fangcang hospital during the COVID-19 pandemic is palpable as temporary hospital heterotopia in order and disorder, justice and injustice, suppression and resistance. In 2020, the live-stream broadcast of constructing Fangcang hospitals formed the heterotopia in three dimensions: spatial configuration, value declamation, and imagery-building. Fangcang hospital construction during the COVID time in

China, on the one hand, emphasizes the competence and efficiency of the nation's infrastructural construction, and on the other hand, its machinery representation. In a live-stream of massive Fangcang construction (e.g., Huoshenshan hospital in Wuhan, Hubei province), every bulldozer and forklift at construction sites got named by internet viewers, which is seen as the pride of China's speed in the name of "Infrastructure Madman" for the campaign for fighting with the COVID-19 pandemic. In contrast, approaching the end of COVID-19 pandemic restrictions in 2022, Fangcang hospital ends up as *lanwei* building (unfinished building) or in controversial discussion. In Zhengzhou, the No. 2 Grinding Wheel Plant was proposed to be transformed into Fangcang hospital (Figure 2.9). The historical industrial landmark was established in 1964 in Bauhaus style and listed as the Major Cultural Heritage site under National-level Protection in 2019. The renovation of The Grinding Wheel Plant as a city park highlights the value transformation from industrial modernization to urban memory and public shared space:

> The Grinding Wheel Park is a sports park and simultaneously a memorial to modernization efforts in China. The use of factory relics in a sports park unites the past with the spirit of modern China. Although these industrial relics have lost their production value, they now have been reborn with new uses that serve the public.[40]

The architectural transformation of the factory implies value shifts in the modern urban memory of Zhengzhou, serving as spatial interventions in its visibility as modern subjects in the context of modern infrastructure. This is how infrastructure shapes and reshapes Zhengzhou in Henan Province, contributing to its unresolved urban identity in terms of infrastructural reality, landscape, and memory. Disaster infrastructure acts as a deconstruction of both physical and metaphysical concerns and visibility.

Figure 2.9: The views of the No. 2 Grinding Wheel Plant in Zhengzhou in 2023: remaining factory buildings, ceramics grinding wheel manufacture workshop in Bauhaus architecture designed by the

[40] The Rebirth of Industrial Memory: Landscape Reconstruction of Zhengzhou Grinding Wheel Plant by Lab D+H. 2022. Accessed March 25, 2023. https://landezine-award.com/the-rebirth-of-industrial-memory-landscape-reconstruction-of-zhengzhou-grinding-wheel-plant/

German Democratic Republic, and the propaganda slogans from the Cultural Revolution (1966–1976) (*Source* Photos by the author, 2023)

Zhengzhou Under the Shadow of Modern Infrastructure

It has been said that Henan province is the epitome of China, and Zhengzhou is the epitome of Henan Province. This implies the underdevelopment and progressive developing conditions and impressions of Henan in China, and China in competing with Western countries since the construction of socialist China. Zhengzhou became the provincial capital of Henan due to its geographical location in the central plain as the crossroad of the railway infrastructure network of China but has also been struggling with its urban identity, not only in economic growth but also in cultural identity and modernity in socialist history. Precisely, the urban infrastructure of Zhengzhou, whether from Green City to Sponge City and the special economic zone of manufacturing infrastructure such as the Foxconn factory, conceals and unfolds the idea of the city's disaster infrastructure as a counter-infrastructure perspective in violence, struggles, and crisis. In this regard, referring to China's social media Sina Weibo hot search list, it palpably shows the development dilemma, social issues, and ambivalent attitude from outside to inside of Zhengzhou and Henan province, which include: out-migrant workers, huge population, regional disparity, reliance on the agricultural economy, inequality of education resources, etc.

The concept of disaster infrastructure in the idea of counter-infrastructure for Zhengzhou emerges from a complex interplay of factors. On the one hand, it is deeply embedded in the city's accelerating urbanization and economic transformation—a development pattern characterized by intensive manufacturing operations that depend heavily on vast pools of affordable labor. This industrial-economic foundation has fundamentally shaped the city's infrastructural development and spatial organization. On the other hand, the city faces mounting challenges from ecological and environmental catastrophes, particularly devastating rainfall-induced flooding events and the far-reaching impacts of the COVID-19 pandemic, which have exposed vulnerabilities in Zhengzhou's infrastructure systems during both acute crisis periods and their lingering aftermath. These challenges have forced a reconsideration of how infrastructure functions in times of disaster.

Meanwhile, the infrastructural memory of Zhengzhou functions as a profound manifestation of its cultural identity and historical evolution, embodying layers of collective memory and social transformation throughout its urban development. This intricate and multifaceted relationship between infrastructure and urban identity can be particularly well understood and analyzed through an architectural metaphor drawn from Gordon Matta-Clark's (1943–1978) thought-provoking and revolutionary 1974 land art installation "Splitting"—an iconic work that dramatically and systematically bisected a suburban house through its center, creating a powerful statement about architectural intervention and spatial transformation (Figure 2.10). This compelling metaphor resonates with Zhengzhou's ongoing urban transformation, as the systematic demolition of historical structures and architectural heritage does not inherently or automatically guarantee positive urban renewal, architectural progress, or meaningful community development. While the physical manifestation of buildings can be extensively manipulated, dramatically altered, and fundamentally reshaped through top-down interventions

and urban planning initiatives, what persistently endures within and through these architectural transformations is a more nuanced and complex interplay of interconnected elements: the sophisticated intermingling of light and shadow throughout transformed spaces, the perpetual tension between processes of construction and destruction in urban development, the ongoing dialogue between historical legacy and contemporary reality in the built environment, and the dynamic and productive interaction between physical void and imaginative potential in urban space.

Figure 2.10: Gordon Matta-Clark, *Splitting*, installation, 1974 (*Source* Courtesy of the artist)

CHAPTER 3
Island Boundaries of Chongming and Hainan: Infrastructure Zones, Ecological Desires, and Maritime Media in Geopolitics

Chapter 3 delves deeper into contemporary China's cultural identity through the lens of infrastructure, expanding the concept of spatial modernity beyond the central plain. It elaborates and discovers the island boundaries in their conceptual meanings, material forms, and spatial practices, set against emerging ecological narratives and global capital flows. Focusing on frontier infrastructure, this section presents case studies of Chongming (Section 3.1) and Hainan Islands (Section 3.2). These case studies illustrate the complex dynamics in China's peripheral regions, recontextualizing infrastructure analysis and discourse in the socialist context. The chapter explores how these island territories act as microcosms of broader national imagery in development narratives and ecological concerns, reflecting updated ideological promises and infrastructure spatialization between land and sea. More importantly, the islands themselves embody subjectivity and fluidity through an infrastructure lens.

3.1 Chongming Island as an Ecological Medium and Site of Ecological Aesthetics

Chongming Island (1,413 km²) is metropolis Shanghai's largest administrative district and the third-largest alluvial island between the East and South China Seas, following Hainan Island and Taiwan Island. Chongming Island maintains a distinct boundary from Shanghai in terms of metropolitan landscape, socio-economic status, population density, and a hybrid cultural life fostered by modern history. Instead, Chongming Island's social and political identity is shaped as an agricultural resource and water reserve supporting Shanghai's large population and urban growth. In the latest strategic position and ideological narrative imposed on Chongming Island, it is slated to become a "World-class Ecological Island" (2021–2035), guided by a series of master plans. Given the geological significance and rural reality of Chongming Island in relation to Shanghai, the establishment of the MadeIn Art Museum arguably presents speculative contemporary practices as an expanding territory of the art production system, extending from Shanghai to Chongming Island.

As a district of Shanghai, Chongming Island rarely asserts its urban identity, despite its administrative status. Shanghai, known as a "magical meropolis," embodies a complex, vibrant, and dynamic urban space in its modern history, hybrid cultural life, and ever-changing spectacles. A significant amount of scholarly and visual work has explored and depicted the imagery and intricacy of Shanghai, not only as a city but also as a surreal impression. However, the island affiliation of Shanghai, Chongming Island, is often overlooked as part of the city due to its geological remoteness and socioeconomic invisibility. In other words, Chongming Island is isolated from the dominant urban narrative of Shanghai, instead being perceived as a rural space defined by its islands, rivers, and waterways. In my analysis, Chongming Island lacks an urban identity in terms of industrial or modern sensibilities as part of Shanghai. However, more radically, Chongming Island serves as an extra-island zone that enriches and amplifies urban desires and national strategies through

infrastructure development and artificial land reclamation. This includes considerations of ecological futures, transportation systems, and undersea cables.

Island on the Edge: Rural Township, Growing Islanding Territory, and Nation's Ecological Zone

Chongming Island is geologically, geographically, and administratively unique. Administratively, it is part of Shanghai as Chongming District, which includes Changxing Island and Hengsha Island. These islands are connected to Shanghai by the Shanghai Yangtze River Tunnel and Bridge. Chongming District has the lowest population density among all Shanghai districts. The smaller upper north region of Chongming Island (4.6% of the island) belongs to Qidong City in Jiangsu Province and is connected to Chongming by the Chongqi Bridge. The combination of geophysical and administrative borders adds to Chongming's identity as an intersection between two cities, the Yangtze River, and the East China Sea, representing both connection and isolation (Figure 3.1).

Figure 3.1: Map of Chongming Island (*Source* Public Domain)

In terms of administration, Chongming Island had been a part of Qidong city, Jiangsu province since the Republic of China, and it continued to be so in the People's Republic of China since June 2, 1949. However, on December 1, 1958, over 95% of Chongming Island became a county of Shanghai to support its overall development, including urban planning and population growth. This was particularly important during the First Five-Year Plan, when Shanghai needed rapid industrialization, subsidized food supply, and residential land for its urban development. As a result, the administrative area of Shanghai expanded approximately tenfold, from 618 km² in 1949 to 6,185 km². From a geological perspective, the natural forces of rivers and sand introduce complexity and uncertainty to these disputes as Chongming Island continues to expand. There is speculation that its ongoing growth may eventually connect to Jiangsu's Nantong side, transforming it into a peninsula. This not only emphasizes the unclear

administrative identity of Chongming Island in the future but also highlights the complexities of geophysical time and space, cultural imaginations, and land reclamation.

Chongming Island's natural formation process dates back to the Tang dynasty in 618, with human residence since 696. The name "Chongming" in Chinese refers to the emergence of a flat and vast land from the water, without any mountains or hills. In the 16th century, Chongming was a collection of floating sandbanks rather than a complete island. Due to its self-growing nature, Chongming Island has a poetic name, "Yingzhou," which symbolizes a sacred island for deities and immortality. The official naming of Chongming Island was granted by the Ming Hongwu Emperor as "Yingzhou in the East China Sea." Chongming Island has been depicted in ancient times as a legendary and picturesque island, always transforming between a "vast sea and farmland" shaped by the Yangtze River and delta landform. Throughout this long process, river sands, water, and artificial land reclamation have played a role in shaping and reshaping the island. Wetland reclamation began in the middle to the end of the Ming dynasty, and its highest rate was reached from the 1950s to 1970s through socialist farms. This was followed by the reclamation of the Dongtan wetland in the 1980s, which further solidified Chongming Island's land layout for farmland. While the flowing river forces with sands and deposits have influenced Chongming's initial and uncertain territory due to tide movement, wetland reclamation (accounting for half of the land) by artificial means has stabilized Chongming's land for farmland against the sea.

Yet, despite efforts in wetland reclamation and ecosystem protection on Chongming Island, the transportation infrastructure connecting it to Shanghai does not fully acknowledge its significance, further consolidating the island's rural identity and separation from urban integration. In terms of accessibility to Shanghai's city area, it takes approximately a 1.5-hour drive across the Yangtze Bridge and Tunnel, less frequent ferry rides, or almost a 3-hour bus ride. This limited accessibility to Chongming Island is also intensified by the nation's strategy to establish Chongming as a "world-class ecological island" (as stated in the Fourteenth Five-Year Plan, 2021–2025), which restricts large-scale urban infrastructure development in order to protect the wetland and biodiversity. On one hand, Chongming Island preserves its rural customs and traditions, such as Confucian rituals and funeral ceremonies, which differ from the simplified modern funeral practices in Shanghai. These funeral customs not only reflect the local folk culture but also the cosmology associated with seasons, solar calendar, soil, and transitions, which are distinct from the urban culture and city regulations of Shanghai shaped by socialist reforms. In general, Chongming Island maintains a predominantly rural identity, distinguishing it from the urban culture and environment of Shanghai.

On the other hand, the constant flow of water from the Yangtze River carrying river deposits to its estuary has not only shaped the foundation and territory of Chongming Island but also led to the displacement of residents due to large-scale hydraulic engineering projects such as the Three Gorges Dam. In the years 2000, 2001, and 2004, approximately 1,500 residents from the municipality of Chongqing, Sichuan province, were resettled in Chongming Island and other districts in Shanghai. Although Shanghai voted against the dam's displacement project, local authorities accepted the decision mandated by the central government in the late

1990s. Chongming Island has since been hailed as a "model of successful migration." On August 17, 2000, Chongming Island accepted the first group of immigrants from Chongqing's Yunyang County. Not only does the downstream flow of the Yangtze River's final destination arrive at Chongming Island, but Shanghai's political commitments as one of the most developed cities in China also address the acceptance of the Three Gorges Dam migration. Notably, the challenges faced by the displaced population are primarily economic in nature. Many of the displaced residents on Chongming Island engage in farming or seek low-paying temporary jobs due to their low educational level. They struggle to save money from their agricultural income while facing high living expenses such as electricity, gas, and water (Padovani 2006). The displacement and resettlement caused by infrastructure changes are carried out through a compromise and commitment to the nation's strategy, with compensation policies in place. In this controversial event, which is driven by a large engineering infrastructure initiative, a mix of emotions and nostalgia for their hometowns combine with the challenges of integrating into the local community, financial struggles, and the aspirations of the next generation to obtain Shanghai residence permits, among other factors. Within this context, Chongming Island also serves as a focal point for the accumulation of infrastructure consequences related to river deposits, land reclamation, and displaced migration. Furthermore, it reflects active spatial variations that capture the flows and shifts involved in envisioning, relocating, and reshaping the natural environment, delta landscape, and the identity of its townships.

The debut of "ecological civilization" in 2017, under the ecological propaganda of "clear waters and green mountains are as valuable as gold and silver mountains" (*lüshui qingshan jiushi jinshan yinshan*) (Figure 3.2), quoted by President Xi Jinping, widely raised public concerns about climate and environmental topics in media coverage (Geall 2017). These "go-green efforts" represent a call for political appeal and ideological ambitions, incorporating technological innovations for environmental protection. This follows China's socialist historical developmental path from the agricultural civilization of Mao Zedong to Deng Xiaoping's industrial civilization (Li and Shapiro 2020). Ecological civilization, which focuses on climate change and the protection of migrating birds, guided the approach of prioritizing protection over large-scale development. The ecological crisis faced by coastal areas, including sea-level rise, climate change, and sea pollution, positioned Chongming as a frontier for experiential ecosystem protection. Aligned with Shanghai's urban sustainability and development, the strategic role of Chongming Island has changed. Under a master plan, it was promoted in the ecological narrative as a "green" island or "green zone" for constructing a world-class eco-island since the 2000s. In this context, Chongming's eco-island focuses on climate change and the protection of migrating birds, guiding the approach of prioritizing protection over large-scale urban development. In a broader view, the ecological crisis faced by coastal areas, including sea-level rise, climate change, and sea pollution, positions Chongming as a frontier for experiential ecosystem protection.

Figure 3.2: Propaganda billboard on Chongming Island says: “green mountains and waters are golden and silver mountains” (*Source* Photo by the author, 2023)

The overall design of “Green Island” is depicted in the winning master plan of Chongming Island proposed by an American urban planning and architecture firm SOM (Skidmore, Owings and Merrill LLP) in 2004. This plan was selected by the Shanghai Planning Bureau for approval by the municipal government.[41] In the same year, construction began on the Shanghai Yangtze River Tunnel and Bridge. According to the plan, this project aims to create three new cities and a transportation infrastructure to accommodate the 600,000 residents on the island. The plan also emphasizes the importance of preserving wetlands, forests, endangered plants, rare species, and agricultural areas. It outlines eight specific themes, including habitat enhancement, organic farming, sustainable industries, transportation, village preservation, new cities, and green infrastructure systems.[42] The plan further highlights the preservation of “farm grid and narrow streets, minimize over scaled highways and connect all cities by rail to Shanghai.”[43] The plan further highlights the preservation of “farm grid and narrow streets, minimize over-scaled highways and connect all cities by rail to Shanghai.” In this regard, Chongming Island can be considered a quasi “satellite island” of Shanghai. Unlike the concept of a “satellite city” in European or American urban planning, which implies a certain degree of political independence and self-sufficiency (Goldfield 2007), Chongming Island mainly refers to its physical separation from the built-up area of the metropolis. The satellite town program in Shanghai was initiated in 1958 to address urban issues such as congestion, pollution, housing shortages, and inadequate urban services (Fung 1981). Although Chongming Island was not part of

[41] In 2005, Shanghai Municipal Government announced the Master Plan of Chongming Three Islands (2005-2020),” positioning the Chongming Island as an integrated ecological island.
[42] SOM Wins Top Honors With ‘Green’ Master Plan for China Island, GreenBiz Editors, January 18, 2005. Accessed March 12, 2024. See the links: https://www.greenbiz.com/article/som-wins-top-honors-green-master-plan-china-island, https://www.som.com/wp-content/uploads/2021/10/chongmingisland_brochure-1633056485.pdf
[43] The case studies by SOM City Design Practice: https://baigongbao.oss-cn-beijing.aliyuncs.com/2020/10/10/Cd325rmHpJ.pdf. Accessed May 12, 2023.

this program, it represents a new concept and strategy that I refer to as the "satellite island," a zone affiliated with the metropolis. Chongming Island has maintained its agricultural island identity before 1995 and has since transformed into an ecological island, a role it continues to uphold until the "Thirteenth Five-Year Plan." The rapid development of Chongming Island as a world-class ecological island has integrated it into the one-hour economic circle of Shanghai.[44] Although the compression of commuting time through transportation infrastructure is a critical factor in urban development, the idea and policy of the zone model of Chongming Island is adapted from an agricultural island prior to 1995. After the updated master planning of Chongming Island, it has transformed into a modern ecological island with a focus on investments in specific towns.

More specifically, one practical problem arises in the policy for real estate development. The commercial residence in Da'ai city is established by FunDe Sino Life Insurance Co., Ltd., located in Qidong city of Jiangsu province on Chongming Island. This presents an uncertain future policy when it comes to administering the property into Shanghai for increased benefits. Most homeowners purchase the property for future investments rather than for living purposes, due to the unlimited house purchase policy in Jiangsu. In other words, the real estate is designed for retirement living. Additionally, the real estate commercial campaign capitalizes on the significant future of the world-class ecological island as a natural resource for affluent individuals who wish to live in an environment with abundant natural beauty.

It acknowledges the need to strike a balance between promoting ecological awareness and implementing policies that address the dilemma of local economic growth and regional development inequality. It is worth noting that many young people choose to work in the city of Shanghai due to the availability of higher-paying jobs, resulting in depopulation on the island. The transition from a rural eco-island to an urban eco-island raises questions about the strategies employed to boost local GDP growth, including managing unprofitable farms, increasing the income of residents in small urban housing, and developing real estate (Ma, Jong, and Hartog 2017, 883). The concept of "green" also encompasses the preservation of the island's rural landscape. In addition to promoting "green" industries, activities such as weekend-and-holiday leisure and tourism (positioning Chongming as a "backyard" for Shanghai), seasonal flower exhibitions, bicycle racing, and locally operated guesthouses contribute to a "slow-paced life" within the natural environment, while new architecture for resort hotels, like SOM Land, further enhances the island's appeal.[45]

The making of a master plan and future imaginations of Chongming Island's ecological future is a crucial sustainable support for the development of the metropolis Shanghai. The island covers one-fifth of Shanghai's administrative land, one-third of its farming land, and serves as two core water supply centers. While transportation infrastructure, such as railways, already exists on the island, the construction of future railways connecting Shanghai, Chongming Island, and Qidong would have a significant impact. However, the development of an eco-island

[44] Master Plan and General Land-Use Plan of Chongming District, Shanghai, 2016-2040: https://oss.baigongbao.com/2021/02/19/RP5YPxkx6d.pdf. Accessed May 12, 2023.
[45] SOMLAND Hostrl on Chongming Island: https://hospitalitysnapshots.com/projects/249z5/som-land-hostel/. Accessed May 12, 2023.

in terms of urban development remains uncertain. Additionally, the uneven gentrification demonstrates that urban space and economic centers are concentrated along the southern coastal line of Chongming Island, near Shanghai. Doreen Massey (1999)'s concept of "power geometry" can be applied here, as the movement and flow of different social groups reflect the power dynamics in relation to these flows. For Chongming Island, the mobility facilitated by transportation infrastructure highlights the connections and differences between the island and Shanghai, rural and urban contexts, and the flow of ideologies and capital in ecological practices.

Rivery Landscape, Inland Waterways

Chongming Island was originally a deserted island that underwent wetland reclamation through the natural accumulation and transportation of sand and sediment from rivers and lakes. The aesthetics of the alluvial delta landscape are represented in its unique flatness, which enhances the visibility of waterways in the rural landscape. The tranquil and manageable water flows and grids combine the distinctive characteristics of an alluvial island. The Yangtze River plays a crucial role in shaping Chongming Island's geophysical foundation, connecting the inner land and estuary, as well as the river and sea. However, tidal forces challenge the fixed shape and territory of the island. Since the land reclamation efforts in the 1950s, half of Chongming Island's area has increased. Therefore, I argue that Chongming Island is formulated as both a natural and artificial island, with tideland reclamation as a human activity contributing to its landmass. The artificiality of Chongming Island prompts a reconsideration of the ecological narrative imposed on the eco-island, as well as what nature means for Chongming Island from the perspective of its infrastructure. Another aesthetic characteristic is the absence of mountains or hills on the island, which contributes to a tranquil and serene environment for the rivers. The flow and circulation of the island's waterways are managed by the hydro infrastructure sluice. The West sluice allows the input of water from the Yangtze River during the flood season in June every year, circulating the water throughout the island, and the East sluice serves as the outlet, releasing the water to the sea (Figure 3.3). The waterways on Chongming Island, rather than being a natural current, are designed and controlled to protect the wetland as part of an ecological desire.

Waterways shape village roads, connecting townships and farmlands on Chongming Island. Despite the presence of main highways and expressways, the spatial arrangement of village roads is shared by cars, motorcycles, bikes, and pedestrians. Along the sides of the roads, the waterway landscape divides the historic farmlands into grids intersected by well-conditioned rural streets and narrow bridges. The waterways consist of one trans-island canal, 28 north-west cross-over rivers every 1.5 to 2.5km, and east-west rivers every 2 to 3km. These waterways are further categorized as rivers, river bends, and river estuaries that accompany tides. They serve as both boat landing areas and narrow waterways dug by villagers for farmland irrigation and drainage. Chongming Island's waterways play a significant role in agricultural civilization and production, serving as natural borders that divide farmlands for village households and supporting the farming process. The artificial waterways define the inland river system and landscape of Chongming Island as an assemblage of agricultural islands shaped by hydrological conditions, riverine habitats, water quality, and human activities.

Figure 3.3: Sluice on West Chongming Island (*Source* Photo by the author, 2023)

The underdevelopment of industry and urbanization, on the contrary, protects the water quality from industrial pollution. Although Shanghai's current city plan promotes a new urban lifestyle along rivers, the industrial pollution caused by economic growth and urbanization in Shanghai has brought back urban memories of the city's riverscape. A cinematic example of river ecology and aesthetics is documented in Lou Ye's 2000 film *Suzhou River*. The film showcases the integration of aesthetics and experience within the circulation and flow of social, economic, architectural, and waterway elements. It represents the "ecology of the city" (Hageman 2009, 76). Using a river as a metaphor, the film portrays a hyperreal lens of Shanghai, depicting it as gray-shadowed, disordered, dirty, and hybridized. This reveals the urban reality and authentic daily life affected by heavy industrial pollution in the Suzhou River since the 1980s and 1990s, due to economic growth and urbanization. As Hageman analyzes,

> Since the late 1970s, but especially since the 1990s, Shanghai and China have been coming to terms with the processes of transitioning from the communist project and its various iterations of collectivity into new forms of interconnectedness as participants in the networks of global capitalism. Instead of accentuating the apparent disjuncture between communism and capitalism of this transition, the cognitive cine-mapping in Suzhou River figures this interstitial period as a shift between two divergent modes of living and theorizing deep structures of interconnectedness. (2009, 91)

The intricate interconnectedness of Shanghai not only illuminates the complex ideological, ecological, and psychological ruptures evident in its urban and aesthetic transformation, but the specific relationship between Shanghai and Chongming Island introduces an additional dimension of fascinating contradictions — one that encompasses elements of speculative fantasy and stark immobility, striking hyper-visibility alongside puzzling invisibility. This dynamic relationship manifests particularly clearly in contemporary development plans: according to official future

development strategies for Chongming, the island has been deliberately positioned as the vanguard of China's ecological ideology, serving as a crucial supporting element in Shanghai's continued development trajectory. The physical connection between island and metropolis takes on practical significance through critical infrastructure — notably, Shanghai's water supply system draws from the Qingcaosha Reservoir, strategically located along the northwestern coastline of Changxing Island, which itself sits adjacent to Chongming Island in a carefully planned arrangement of urban-ecological interdependence.

Despite the global crisis of the local waterfront, which addresses the issues of biodiversity and climate change, water-based narratives and aesthetics have become critical means to express the identity of Chongming Island. As part of China's ecological civilization, local governance takes on hierarchical responsibility for addressing river pollution and water quality. This is evidenced by the creation of the administrative position known as the "river chief" (similar to the positions of "road chief" and "lake chief"). As of 2022, there are 300,000 river chiefs at the provincial and county levels, and 900,000 river chiefs in villages.[46] It is argued that the majority of water-quality issues stem from the lack of knowledge among local officials and manufacturers rather than a deficiency in laws and regulations (Smith 2020, 95). The management of water infrastructure by the central government highlights the intricate and complex geological nature of waterway systems. The waterways on Chongming Island are mapped and managed as a crucial indicator for eco-island development. They are also a component of Shanghai's ecological initiatives, which aim to promote the city's long-term sustainability goals as part of ecological civilization.

Mapping Invisibility of Media Infrastructure: Undersea Cable Landing Chongming's Wetland Zone

During the Ninth Five-Year Plan (1996–2000), the electronic infrastructure on Chongming Island began to support Shanghai's electricity network. Beyond this regional story of electrical supply, the global media infrastructure of undersea cables on Chongming Island reveals the physical and cognitive mobility of power dynamics and telecommunication capitals. Infrastructure space constructs an artificial world and provides spatial knowledge of the global network. Notably, undersea fiber-optic cables are crucial infrastructure that supports 99% of transoceanic digital communication, connecting our global network society.[47] Today, there are a total of 529 undersea fiber-optic cables connecting continents, making them one of the most important critical infrastructures for global information and communications. These cables trace global cooperation in geopolitics and power, physically connecting coastal cities through landing sites and crossing the seabed. Undersea cables serve as media infrastructure, mediating real and imagined information exchange and altering the temporality of communication. However, they also increase the vulnerability of media to government surveillance based on geographical location and perpetuate imbalances in media production and consumption (Starosielski 2015). According to David Harvey's concept of "time-space compression" in the capitalist world, private and public decision-making has

[46] "River chief system advances conservation efforts," China Daily, September 14, 2022. Accessed April 12, 2023. https://english.www.gov.cn/statecouncil/ministries/202209/14/content_WS63210c0ec6d0a757729dff12.html

[47] *Surfacing*, by Staroseilski, et. al., 2016, http://www.surfacing.in/. The website provides digital mapping of submarine cables that coastal landing stations globally.

become more immediate and spread across a wider and more diverse space due to satellite communication and declining transport costs (1990, 147). This compression not only accelerates decision-making and overcomes spatial barriers but also collapses the mental and conceptual distance in time and space (Harvey 1990, 240). This collapse is exemplified by the idea of "instant messaging" through pneumatic tubes, where the physical invisibility and disconnection of the underground tubes from the urban surface enhance the notion of instantaneity (Farman 2018, 136–7).

On the other hand, cognitive imperialism deeply ingrains the new communication techniques, where "the idealized world of technologists would be extended automatically to the less fortunate periphery—less fortunate because it was at the periphery" (Marvin 1988). The domination of peripheral frontiers, such as islands, is connected and compressed by the fantasies of Western civilization and the means of technological communication systems, particularly electricity and the concept of instantaneousness. In terms of late capitalism's visibility, Toscano and Kinkle's Cartographies of the Absolute explores the "aesthetic problem" in representing, narrating, and mapping the economic system and social structure within a global network, using selected books, films, a television show, and contemporary art (2015, 24, 13–14). In this case, undersea cables perfectly align the flow and waves of global information capitals, landing in coastal cities of the main continents around the world. The aesthetics of undersea cables lie in their imagined power to conceptualize the information traffic that connects continents, as well as their material existence in the invisible and sensitive ocean, representing the globalization of capital. These shared submarine cable networks crisscross oceans and seas, connecting nations and people in digital networks and everyday communications (Figure 3.4).

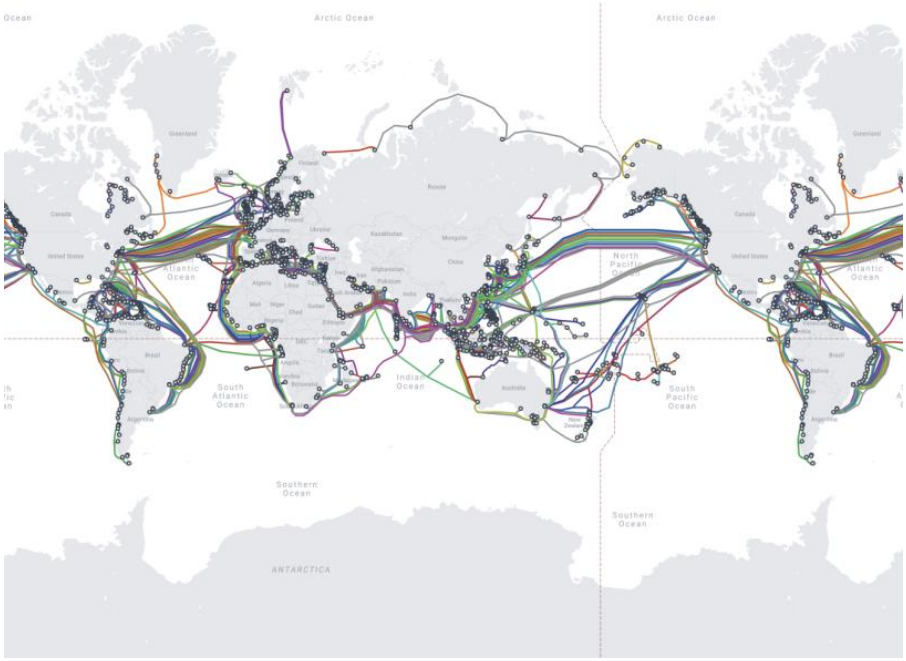

Figure 3.4: The Submarine Cable Map (*Source* TeleGeography, https://www.submarinecablemap.com)

As a strategic location, Chongming's peaceful and rural scenery provides an ideal and environmentally-friendly setting to house the undersea cable facilities and receive signal transmissions. The New Cross Pacific (NCP) Cable System, which

was initiated in 2011 and completed in 2018, is a highly significant telecommunications infrastructure for mainland China. Prior to the establishment of the NCP, most internet broadband had to be routed through Hong Kong. Therefore, the NCP represents the first submarine cable linking mainland China with East Asian regions such as Taiwan, Korea, and Japan, as well as the United States.[48] Besides, the first China-U.S. Cable Network (CHUS), which began operating in 2000, was prematurely retired in December 2016, before reaching its original lifespan of 25 years. This decision was made due to the high cost of maintenance. The fragility of submarine cables is primarily influenced by both human and nonhuman factors, including marine animals, fishing boats (which have caused signal disruptions near or on Chongming Island in 2001, 2003, and 2017), and undersea earthquakes (such as the 2006 Taiwan Hengchun Earthquakes).

In terms of the submarine telecommunications network market, the increasing number of undersea cables has reduced the cost of using internet broadband. However, this also highlights the international technological dominance and potential competition. Unlike surface transportation infrastructure, such as railroads or highways, which are typically managed and funded by governments, undersea cables are more flexible and inclusive as they can be laid by private investors. However, the Universal Jointing Consortium (UJC) has been established to ensure unified international standards for equipment, installation, and operation of offshore fiber-optic cables. The UJC consists of four member companies: Global Marine Systems Limited from the United Kingdom, SubCom, LLC from the United States, Alcatel Submarine Networks from France, and Kokusai Cable Ship Co Ltd from Japan. The bandwidth carried by submarine cables is primarily consumed by technology companies in Silicon Valley, such as Meta (formerly Facebook), Google, and Microsoft. In the age of the Internet, the demand for high-volume information exchange places a critical importance on undersea cables. This underscores the need to focus on ocean space to facilitate the rapid distribution and acquisition of data and information.

For Chongming Island, the cable landing station is located in the expansive Dongtan Wetland, which serves as a national wildlife sanctuary. This protected area is home to various species of fish and nearly a million migratory waterbirds, including spoonbills, Kentish plovers, curlews, shorebirds, greenshanks, sandpipers, egrets, and herons, which make annual stops on the tidal flats and saltwater marshes. On the other hand, the history of land transformation in Eastern Chongming, including Dongtan Wetland, encompasses different stages: the period before 1950, between 1950 and 2001, and after 2002, which involved natural development, artificial land reclamation, and ecological adaptation. Notably, future adaptation to climate change and rising sea levels is crucial for the survival of these wetlands (Bao and Gao 2021, 11). As a transitional zone between the island and the sea, Chongming Island is committed to ecological concerns and contributes to the global digital connection.In this sense, the wetland zone has been integrated through undersea cable infrastructure into the ecological narrative of Chongming's identity as an ecological island.

[48] The NCP has a total cable length of 13,618 km and is owned by China Mobile, China Telecom, China Unicom, Chunghwa Telecom, KT, Microsoft, and Softbank Corp. One of the landing spots in Mainland China is Chongming Island, operated by China Telecom (the other two locations are Lingang and Nanhui, China).

The mass international signal traffic represents the movement of information and capital as a global network. On the other hand, the relative immobility of Chongming Island's rural disposition illustrates the "power geometries of time and space" as argued by Doreen Massey, who states that "Globalization would seem to be an intrinsically spatial subject" (1991, 28). In the prehistory of cables, the presence of islands (mostly deserted ones) emphasized these power geometries in the context of new imperialism. Starting in the 1850s with the establishment of the first submarine cable in the English Channel, islands served as relay stations or midway positions for Britain, France, and the United States, enabling the expansion of their empires through the cable and telegraph system (Headrick 1981, 163–164). Furthermore, Starosielski's analysis offers an alternative perspective on the cultural geographies of islands, highlighting their interplay with geographies beyond the dialectic scheme of island (disconnection) and network (connectivity) (2015, 172–173). Unlike geophysical insular islands such as Guam and Fiji, Chongming Island serves as both the endpoint of trans-Pacific signal traffic and the frontier of the mainland, in addition to being crucial for the nation's information security.

As Shanghai and the mainland rely on Chongming Island for telecommunications, there is a lack of infrastructure to support the island's participation in the metropolitan area of Shanghai. On one hand, the digital cable network represents the technology infrastructure and global digital connectivity. On the other hand, the transportation infrastructure does not yet connect Chongming and Shanghai within the "one-hour economic circle," which contrasts with the speed of message transmission via Chongming Island. While the network infrastructure may appear neutral and democratic, it actually plays a significant role in facilitating capital accumulation and productivity (Tang 2020, 41). Thus, the spatial occupation and temporal imagination that converge on Chongming Island are disrupted by the infrastructuring process, and the reality is a rupture.

This spatial and cognitive disruption, facilitated by global network infrastructure, is prominently revealed in the alternative endeavors and fieldwork of media artists. Undersea fiber-optic cables serve to connect, visualize, and complicate coastal territories, functioning as digital environments, network landscapes, and signal spheres. As Marshall McLuhan (1964) puts it, TV is "cool media" due to its low resolution and low participation compared with films, for example. Thus, poor images of TV may also exist in the visual abstraction of signal connections across the continents. Akin to Nam June Paik's groundbreaking installation (*Electronic Superhighway: Continental U.S., Alaska, and Hawaii*, 1995), Paik's work portrays the construction of media infrastructure as a "broadband communication network," illustrating the interplay between individual, regional, and national domains, and emphasizing the connectivity between continental and peripheral states. In alignment with this global connectivity, the video photographs by media artist Evan Roth depict the crimson lines of "the cloud under the sea." These red lines signify the infrared spectrum traveling through the fiber-optic cables. Instead of commenting on the presence of media infrastructure, such as televisions, in our daily lives, we should focus on the physical internet infrastructure. This infrastructure is represented by undersea fiber-optic cables that reveal the sheer power structure of the internet. By exploring and visually experiencing the outdoor landscape of internet infrastructure on coastal sites, we can raise awareness of Bruno Latour's concept of "blackboxing." This concept refers to the tendency to ignore the internal

workings and complexity of scientific and technical functions and operations, treating them as indivisible entities.

In this larger picture of Trevor Paglen's "dark geography" or "dark world" (2010), the blackboxed side of undersea fiber optic cables is depicted. Paglen's art practice, dedicated for decades, explores the visibility of the normally unseen undersea optical cables. In his work *Landing Sites*, Paglen uses photography and collage to capture the locations and "choke points" where undersea cables connect to the continent. Going further into the invisible infrastructure landscape, the artist even learned scuba diving to physically "see" the undersea cables of the Internet. Rather than focusing on time, Paglen's work is spatial and experiential, exploring the ocean instead of the land. Undersea cables transform into a spectacle of infrastructure, allowing us to visually comprehend the data they carry. Beneath the ocean's surface, there exists a surveillance system and a superhighway of internet traffic. The visibility of this infrastructure reveals its physical manifestation and surveillance capabilities. As Nicole Starosielski suggests, to ensure smooth and effective global communication, it is important to view fiber optic infrastructure as a material system that requires constant construction of visibility (Truscello 2020, 143).

In the case of Chongming Island, the undersea optical cable connects to the Eastern Wetland, creating a network that spans both horizontally and vertically. This spatial setup allows for the monitoring of a rural public space by receiving signals through the undersea cables. The visibility of the undersea cable imagery reveals its existence as something invisible to the public. The visual aesthetics of undersea cables are not sublime in the sense of an overwhelming visual experience but in the spatial experience of sensitivity and imaginaries connecting sea and land. To trace and identify the underground cable line, I have placed visual displays in the form of warning signs for fiber optic cables along the roads surrounding the Dongtan Wetland. There is a distinct separation between the physical and mental aspects of these multiple spaces. The area where the signal lands is closely monitored and marked with noticeable and abundant warning signs in white and red. These signs state: "There are underground optic cables that must not be dug up. Please inform the appropriate authorities (such as the police station, Telecommunications Authority, and Army) before beginning any construction work" (Figure 3.5). The presence of underground cables is evident due to their vulnerability and their critical role in communication infrastructure, which makes them both valuable and costly.

Figure 3.5: The collage of warning signs for underground cables on Chongming Island (*Source* Photos by the author, 2023)

Instead of the fixed and regular impressions of islands as remote, peripheral, and marginal, the case of undersea fiber optic cables of Chongming Island reveals a deeper reflection of the past and future of regional and larger geophysical narratives. This is achieved through the spatial development and practices of media infrastructure, which reflect the additional needs and desires of the mainland. However, the isolation of the island also confirms its political and ecological significance, whether it is driven by ecological desires or the new imagery of a nation, both of which support the development and accumulations of the mainland. Furthermore, the sensitivity of nonhuman and material entities is evident in the migration of waterbirds for ecological purposes, as well as the surveillance of underwater cables to manage the internet infrastructure. In this context, the hypervisibility demonstrated through visual manifestations and investigations unveils the power structure of media infrastructure. Consequently, Chongming Island's dependence on Shanghai or the mainland is interwoven with both visible and invisible media infrastructure, as well as the nation's strategy regarding ideological ecological desires and imaginaries. This positions the island as an emerging ecological frontier. In the following section, Through analyzing aesthetics in ecological narratives and contemporary art practices, I explore expanded concepts of island boundaries. This analysis aims to develop a more nuanced understanding of Chongming Island's cultural identity, focusing specifically on the MadeIn Art Museum.

Aesthetics of Contemporary Artistic Practices vs. Aesthetics of Ecological Narrative

On October 26, 2022, the MadeIn Art Museum made its debut on Chongming Island. This open-air museum was intentionally remodeled with minimal alterations from several chicken factory buildings dating back to the 1970s. This recognizes the locality of socialist collective memory and land transformation within the contemporary discourse of ecological narrative:

> Now we are going to use this land reclaimed in the 1970s. It took over 30,000 people twelve months to work on over 1.4 million square meters of

> land, reclaim a 17-kilometer-long embankment, and fill over 2,600 hectares of fertile soil. This was the first local "ecological action" that took place in 1971. Over a short span of the past fifty years, the land has witnessed socialist land reclamation, collective agricultural life, and the establishment of the "new-era national ecological demonstration area," among many other incidents.[49]

If the intricate and multifaceted interconnectedness of Shanghai serves as a lens through which we can understand its complex ideological transformations, profound ecological changes, and deep psychological ruptures manifesting in both urban development and aesthetic evolution, then the particular "interconnectedness" between Shanghai and Chongming Island introduces an additional fascinating dimension — one that encompasses both speculative fantasy and stark reality, moments of striking visibility alongside instances of deliberate obscurity, and the tension between rapid motion and enforced stillness. This dynamic relationship manifests most prominently in the contemporary reality of urban planning, where according to carefully crafted future development strategies for Chongming, the island has been strategically positioned to embody and advance China's ecological ideological principles, functioning as a vital support system for Shanghai's continued urban development and expansion. The physical connection between island and metropolis takes on practical significance through critical infrastructure - notably, Shanghai's essential water supply system draws from the Qingcaosha Reservoir, strategically located along the northwestern coastline of Changxing Island, which itself sits adjacent to Chongming Island in a carefully planned arrangement of urban-ecological interdependence.

In this context, the "second ecological action" produced by the MadeIn Art Museum begins with its permanent display on October 27, 2022, *XU ZHEN®: Embracing Chaos 1.0*. Featuring a dozen pop-art-practice sculptures created in 2021 by MadeIn Company (XU ZHEN®)'s artist-founder Xu Zhen (born 1977, Shanghai), it is conceived to "pick up the baton of reclamation and invent a landscape of his own." Sculpture, in its material form, constructs a conceptual and aesthetic visibility in its spatial dimension. As seen in Xu Zhen's sculptures in the method of directly grafting Western and Eastern art and cultural forms, it dramatically conveys "a ridicule and mockery of the dislocated aesthetics and ethics in the globalized cityscape" and aesthetically formulates "the contemporary technology-landscape-commodity reality."[50] This hybrid cultural discourse resulted in the globalization of the art productions of XU ZHEN®. It shapes a kind of contemporary cultural identity of postmodern art as ambiguous subjectivity within a conceptual framework of appropriation or parody. For the MadeIn Art Museum on Chongming Island, the cultural identity espoused by XU ZHEN® incorporates an "ecological turn."

This "ecological turn" has been practiced between land art and land use for ecological action and narrative in an early stage in 2019. Xu Zhen, along with his curatorial team, organized a group exhibition titled Advent: Inventing Landscape, Producing the Earth (2019.10.20–2020.03.31), on the theme of the evolving ecological landscape between rural and urban areas. The art project, which was held

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[49] See the artist's statement about *Embracing Chaos 1.0.* Accessed December 12, 2023. https://www.xuzhenart.com/en/exhibitions-cat/solo-exhibitions/

[50] Ibid, https://www.xuzhenart.com/en/exhibitions/denglu1-0/. Accessed December 12, 2023.

at Shuxin Village's Qiaoshao Contemporary Art Center on Chongming Island, benefited from the support of the Culture and Tourism Bureau of Shanghai Chongming District, the local village government, and the village committee. In this context, Qiaoshao's spatial identity is more associated with collective land ownership than with the privatization of an art institution. Strategically, Chongming's local government incorporates contemporary art exhibits as an integral component in developing cultural tourism and promoting eco-island construction. While there is speculation about the collective use of land, especially given the current aging population in rural areas of Chongming Island, the preferential land use policies for MadeIn art production are positioned within an ecological narrative. This pertains to the engaging politics of ecological narrative that fabricate the cultural identity of Chongming Island.

Drawing from Hito Steyerl's analysis of the "museum-as-social-factory," it becomes evident that the reality is actually the white cube, representing "the blank horror and emptiness of the bourgeois interior." Similarly, in Andy Warhol's model of the "social factory," the art space serves as a platform for contemporary production, showcasing visuals and promoting values.

> It is an a-factory, which produces affect as effect. It integrates intimacy, eccentricity, and other formally unofficial forms of creation. Private and public spheres get entangled in a blurred zone of hyperproduction. (Steyerl 2012, 62)

The migration of private and public spheres is intricately intertwined with the ecological desire at the MadeIn Art Museum. The museum's location can be seen as an artistic representation of a farm. Visitors are immersed in the spectacles and screens of the installation space, which are dispersed in a decayed farm and evoke the atmosphere of the 1970s, where they can take numerous pictures in this alternative art public space (Steyerl 2012, 94).

As far as the public space curated by the MadeIn Art Museum, to engage individuals with the ecological narrative, desire, and imagination, philosopher Lu Xinghua (2019), who is involved in exhibition curation at MadeIn Art Museum, presents the concept of an art-ecosystem: "The exhibition envisions a scenario where a contemporary art viewer unexpectedly finds themselves in Qianshao village, on the frontier of Chongming Island. They realize that they are part of an ecosystem theater, taking on the role of the protagonist and embarking on their own journey of self-expression and exploration." Although the rural surroundings and the spectatorship in "ecosystem theater" attempt to shift the spatial experience and dominant values away from the traditional white gallery space, the high visibility of contemporary art production on Chongming Island's site-specific space showcases the ecological politics through the use of ecological elements in aesthetics. In the words of Steyerl: "Instead of filling this space, it conserves its absence. But it also simultaneously displays its potential and the desire for something to be realized in its place" (2012: 72). In the case of *Living a Performance, Artist's Life: 2023 Performance Art Documental Exhibition* (2023.5.13–2023.9.15) at the MadeIn Art Museum, the lecture performance *Screen Green* (2015–16) by Singaporean artist Ho Rui An addresses ecological politics. The piece explores screening and greening as speculative cinematic spaces for envisioning and promoting speculative futures (Figure 3.6). *Screen Green* can be seen as a metaphor for the conceptualized "green"

practices, driven and envisioned by state-led propaganda for ecological value. Conversely, *Screen Green* also conveys a hyper-reality of Chongming Island. Here, the ideological "green" is abstract, and the rural reality questions this conceptualized notion of "green."

Figure 3.6: Ho Rui An, *Screen Green*, 2015-16, Performance Presentation (*Source* Photos by the author, 2023)

MadeIn Art Museum on Chongming Island is a spatial adaptation that combines contemporary art aesthetics with rural ecology in a botanical colonization setting. This rural ecology, situated within contemporary art aesthetics, potentially undermines the farm ruin by improvising within a spectacular urban space. As summarized by Tim Edensor (2005):

> A host of alternative forms of public space — in which people may play, mingle, linger and mix with non-humans — are called for, spaces full of objects that are not commodities, spaces whose function is open to interpretation and inarticulate spaces which contain a range of dissident planes, perspectives and textures. (172)

Looking back at the socialist spatial history of the MadeIn Art Museum, its rural landscape is closely connected to land reclamation efforts that transformed Chongming Island into an artificial island. The collapse of ecological aesthetics on Chongming Island and contemporary artistic practices experimented there are mediated by the socialist construction of land reclamation and its architectural ruins. During Mao's China, the delta culture involved sending down youth to work on national farms from the 1960s to the 1980s. As a political and cultural enclave of the Cultural Revolution from 1962 to 1986, the sent-down youth in rural areas have their own unique memories of a generation that combines hardship, boredom, hopes, and confusion of youth. The primary goal of Shanghai's land reclamation was to ensure food and subsidiary foodstuff production. The state farm infrastructure served as the foundation for land reclamation, driven by the communist utopian

society and Mao's propaganda. Shaping wetlands or desert lands became the platform for promising communist futures. The sent-down youth from Shanghai played a role in constructing the rural area and also shaped the interactions and socialist memories of rural–urban relations due to political movements and environmental challenges. Zhang Peicheng's 2011 ink and wash painting *Vast Sea Changing into Farmland —Chongming Polder* (Figure 3.7) portrays the typical labor scene for polder on the wetlands of Chongming Island. It shows a mass of men and women of different ages on the wetland, carrying rocks to build dams and cutting phragmites for temporary shelters and beds. This natural occupation and spatial transformation are depicted as a historical legacy and collective and individual memories of the generation from Shanghai on Chongming Island in the 1960s. On the other hand, phragmites or reeds occupy a significant portion of the painting and hold symbolic and environmental importance to Chongming Island's cultural and ecological identity. Due to massive land reclamation projects, the reeds have been greatly reduced, especially in the coastal wetlands of the island. The disappearance of these native reeds highlights the contradictory nature of ecological destruction resulting from ambitious eco-development goals (Xie et al. 2022, 242).

Figure 3.7: Zhang Peicheng, *Vast Sea Changing into Farmland*, 2011, ink and wash (*Source* Courtesy of the artist)

Until the 1970s, the emigration of most sent-down youth back to Shanghai highlighted the uneven development between urban and rural areas in China. As a result, abandoned houses and ruins are often visible on the island. The farming community was relocated to a new apartment complex for road construction or government/business-initiated projects, leading to a significant loss of their connection to the land (Cole 2009, 65). This rupture between urban and rural reality also reveals the labor that supports, contributes to, and is exploited in manufacturing. Artist Li Xiaofei's 2008 two-channel HD video, *Ponytail + Chongming Island II*, offers a silent perspective on female labor in China's global supply chain. The documentary captures fragmented movements through close-ups and long shots, juxtaposing the various hairstyles, clothing, and body gestures of female workers in Chongming's stainless steel factory. The video is part of Li Xiaofei's *Assembly Line Project*, a long-term exploration of the manufacturing process in modern industry to increase factory efficiency and productivity. The arrangement of machines and work lines represents the aesthetics of the factory and offers a bottom-up view of the daily

lives of factory workers. However, the location of Chongming Island as a factory site further reveals the workers' mindset and reality, which differs from the urban conditions of Shanghai. This difference is both psychological and physical, embodied in the distance between the island and Shanghai.

Ultimately, not only does ecological aesthetics involve sensual connections to natural and cultural processes (Steiner 2019, 33), but "all art is ecological," as stated by Timothy Morton (2021). Specifically, I suggest that in the case of the MadeIn Art Museum on Chongming Island, its ecological narrative, ecological aesthetics, and politics of ecology primarily practice cultural identity, questioning what ecological value means for contemporary artistic practices. From the material reality of chicken factory ruins left from Mao's China during land reclamation to the ecological island construction as part of ecological civilization, the cultural identity of Chongming Island is renewed by the politics of ecology. The emerging contemporary artistic practices produced by the MadeIn Art Museum are not only another open-air alternative art space, but they also articulate its cultural identity relying on Chongming Island's ecological narrative. First, the location of Chongming Island acknowledges both remoteness and separation in the rural landscape against the metropolitan dynamics of Shanghai. This spatial identity of Chongming Island is consolidated by the socialist historical and cultural peripheral position of the island, but also for so long as a natural resource for supporting the urban development demands of Shanghai. In other words, Chongming Island has been ignored or never considered as part of the postmodern discourse of Shanghai. In this context, the MadeIn Art Museum not only articulates its updated cultural identity through the spatial practices on Chongming Island but also characterizes its art production and experience, mediating through the distinctiveness between Shanghai and Chongming Island to involve ecological narrative in the discourse of the ecological island.

Second, the dual aesthetic dimensions of ecological narrative are conceived by the aesthetics of contemporary art performed at the MadeIn Art Museum and the aesthetics of Chongming Island. The evolving ecological narrative interfaces through the politics of spectatorship in the form of sculptures and screens within the MadeIn Art Museum. Rather than site-specific art production on Chongming Island, the cultural identity of MadeIn Company or XU ZHEN® as a contemporary art brand has to perform the appropriation of rural ecology as its aesthetic dimension and ecological narrative. As for Chongming Island, the ecological value insinuates its ecological aesthetics instead of rural reality or in a sense of "speculative realism." The ecological aesthetics, whether in contemporary artistic practices or for Chongming Island, practice a cultural identity to configure ecological, spatial, and cultural narrative for our age. Rather than an isolated island zone or experiential field for contemporary art, Chongming Island can be considered as a transitional and mediated ecotone (Ewert 1993) for non-productive exit, not for building a natural environment nor making nature through ecological narrative, as Steyerl says:

> What else is desperately missing from the museum-as-factory? An exit. If the factory is everywhere, then there is no longer a gate by which to leave it—there is no way to escape relentless productivity." (2012, 94)

Lastly, regarding the MadeIn Art Museum on Chongming Island exhibiting the magical metropolis of Shanghai, it uses contemporary art in a global context to

highlight Shanghai's rural dimension of Chongming Island, which has long been underrepresented. However, a further question to consider is whether Chongming Island should be seen as an integral part of Shanghai or if it represents a political ideology with an ecological narrative that shows its limitations and demands a new discourse for a socialist future with environmental civilization. The eco-island indicates that socialist China must adapt to a new discourse on its ecological agenda. In this context, Chongming Island represents new socialist modernity, attempting to lead ahead of Western globalization and modernization. Given this perspective, I propose that the MadeIn Art Museum be contextualized within Chongming Island's speculative ecological future.

Furthermore, Chongming Island acknowledges the experimental zone of the rural-urban conjunction area, as the urbanization of Shanghai is still an ongoing process when considering the "urban-rural integration degree" (*chengxiangjiehedu*) of Chongming Island and its significance for the future development of Shanghai (Wang 2018), particularly the transport infrastructure for accessibility. There is uncertainty and speculation regarding the MadeIn Art Museum's cultural identity in the ecological narrative as it becomes an eco-island, as well as the expected transport infrastructure connecting Shanghai's urban area between 2025 and 2026. The new Chongming metro line will likely bring tourists and new residents to the island, but tensions still exist between urbanizing forces and global capital with the ecological counterpart. It will also update or even reverse what the founder Xu Zhen declares: the idea of establishing the MadeIn Art Museum on Chongming Island is to "play the game of artistic collectivist life....The first step of this game is to drive 2 hours from Shanghai city, through the tunnel and the Yangtze River Bridge, and land on Chongming Island."[51]

Infrastructuring Ecological Island

The hypothetical development of Chongming Island focuses primarily on the construction of a world-class ecological island (2010–2040) within the context of ecological civilization. This is seen as a remedy to shape the island's identity, rather than focusing on urbanization strategies or models. Meanwhile, Chongming Island's location at the end and mouth of the Yangtze River Economic Belt amplifies the significance of ecological policies and spatial narration for its future possibility. The term "ecological island" originated in New Zealand and Australia. It refers to an isolated environmental entity that is separated from the surrounding land by natural or artificial means. In a more exclusive sense, an artificial ecological island, also known as a "mainland island," aims to restrict human activities and eradicate non-native species in order to protect the ecosystem and preserve native animals.

In a different context, the ecological cultivation and transformation of Chongming Island serves as a sophisticated spatial practice that aims to comprehend and reimagine infrastructure beyond the physical boundaries of the island itself, making significant contributions to the broader development of a socialist ecological civilization. By drawing upon Félix Guattari (1989)'s multifaceted concept of "Three Ecologies," we can observe how the dominant narrative of the eco-island, carefully guided by government-led policies and comprehensive national strategies, has profoundly influenced the island's political discourse, social dynamics, and

[51] See the post: "A Letter from the Director of the MadeIn Art Museum, September 20, 2024." Accessed December 12, 2023. https://mp.weixin.qq.com/s/Sb6beszxD01w663J0LK2yw

emotional atmosphere (mental ecology). This transformation extends deep into the collective consciousness of the island's inhabitants and visitors alike. The intricate convergence of traditional agricultural farms and repurposed abandoned factory sites, the strategic expansion of interconnected waterways, the sophisticated installation of undersea fiber optic cables, and the ambitious upcoming transportation infrastructure projects continuously redefine and reshape the island's complex physical and social landscape (social and material ecology). Furthermore, the expansive wetland environmental protected zone, functioning as a vital natural infrastructure, establishes the essential framework for the island's ecosystem and diverse biosystem (environmental ecology). This relationship between space and infrastructure is fundamentally relative in nature, as it establishes the essential material framework for our understanding of time-space relationships: to the extent that we now exist in a world characterized by the phenomenon of time-space compression, as thoroughly analyzed by Harvey in his *Condition of Postmodernity*, and simultaneously experience the complex dynamics of time-space distanciation, as articulated by Massey in her text *For Space*, this reality is fundamentally rooted in our deliberate construction and organization of physical spaces that enable and sustain these temporal-spatial relationships (Mitchell 2021,149). As a result, the Chongming ecological island has evolved into an exemplar of sustainable development, embodying a relatively green and media-infrastructural physical space. It maintains sophisticated connections to the mainland and the global network through advanced undersea cables, while simultaneously operating under careful environmental surveillance within the transitional zone of the island's protected wetland area—the ecological narratives of Chongming Island shape its boundaries while constructing its identity as an ecological island.

3.2 Hainan Island's Speculative Future as Infrastructural Zone and Oceanic Boundaries

> The new form of the the political effectiveness of sovereignty,
> according to Foucault in Security, Territory, Population,
> is "linked to the idea of an intensity of circulations:
> circulation of ideas, of wills, and of orders,
> and also commercial circulations."
> ——Erin Y. Huang

While Chongming Island, affiliated with Shanghai, serves as a prime example of how an ecological entity is being developed and integrated into contemporary China's emerging cultural identity through an infrastructurizing process, Hainan Island takes this concept even further and more intricately. Hainan more intensively performs and reconstructs its role in relation to the complex island-mainland discourse and beyond, positioning itself as the nation's vital oceanic borderline and in disputes of oceanic sovereignty. Thus, this southernmost province, with its abundant tropical resources and strategically constructed artificial islands, functions as a multifaceted frontier island infrastructure. Conversely, Hainan Island's counter-infrastructure perspective manifests in its promising Free Trade Port future, the collapse of aggressive and suspended capital projects, the contested sovereignty in the South China Sea with its emerging artificial islands, and the ongoing tensions between land and sea—and beyond.

Geophysically, Hainan Island, located in southern mainland China, is slightly smaller than Taiwan Island, with an area of 33,210 km². Positioned as a midpoint on the ocean route from Shanghai to Singapore, Hainan Island has a turbulent and intricate history of development planning and imperial imaginations from the late Qing to the Republic of China (1912–1949). However, actual modern infrastructure construction, including railways and dams, took place during the Japanese colonial period (1939–1945) in World War II, with a focus on exporting and exploiting natural resources. It was not until 2018 that a comprehensive and extensive master plan for infrastructure was put into action, marking the official designation of Hainan Island province as the Free Trade Port in contemporary China. At the end of March 2023, during the annual Boao Forum for Asia in Hainan province, the Free Trade Port (FTP) of Southern China was scheduled to launch its "independent Customs operation" by 2025.[52]

Against the backdrop of historical and cultural formation, socio-economic and geopolitical narratives, what are the multiple layers of imaginations and desires that continue to shape Hainan Island's speculative futures in terms of resilience, power relations, and cultural landscape? One possible answer lies in exploring Hainan's infrastructure space, which includes the fields of transportation systems, tourism, militarization, and artificial islanding. In this chapter, shifting from Chongming Island to Hainan Island, I delve into the geopolitical complexities and global imaginations for Hainan's speculative future. In doing so, I also discuss the ontology of island thinking in modernity and colonially, circulation and narration, and ocean media for artificial islands.

[52] According to an article titled "Independent Customs operations to boost Hainan Free Trade Port" published on April 4, 2023, in *China Daily*.

"Tropical Paradise": Hainan Island's Modern Identity and Its Discontents

Predominantly, the island's role as an experimental area for global trade participation has been historically significant, while also attempting to establish its international reputation as a "paradise" for both tourists and investors. Such utopian imaginary of Hainan, in terms of its scale, geopolitical location, and natural resources, is often romanticized as a "paradise" after Hawaii and Bali in modern times. In 1937, Chinese-Malaysian physician and epidemiologist Wu Lien-Teh (1879–1960) published an article titled "Hainan, the Paradise of China" in *The China Quarterly*, proposing Hainan Island as the third paradise island after Hawaii and Bali. To achieve this status, Wu suggests that Hainan needs to develop tourism infrastructure in its coastal cities to attract international tourists, athletes, naturalists, and individuals interested in studying the Li and Miao people and their culture in the mountainous regions. Similarly, The National Geographic Magazine also referred to Hainan as the third paradise island, following Honolulu and Bali islands (July–December, 1938). The concept of Hainan as the "third paradise island" encompasses two ideas: the longing for a repetition of the island-paradise model and the growing global recognition of Hainan Island's development (Figure 3.8).

Figure 3.8: Map of Hainan Island (*Source* National Geographic Maps)

Thinking on an island primarily narrates the interplay between utopian and dystopian ideas. It showcases the imaginative power and literary discourse of a desert island, reflecting aspects of Western civilization, capitalism, and colonialism (Defoe [1719] 2008; Golding 1954; Stevenson 1883; Wells 1896; Xiao and Chen 2022). Philosophically, thinking on an island is dialectic in the context of modernity. While Gilles Deleuze's (1953) "desert island" emphasizes the recreation of the world as a driving force for the existence of such islands, Jacques Derrida's (2011) analysis demonstrates the sovereignty and legibility of a desert island in the discourse of deconstruction and decolonization. They both argue that an island's identity is "real and imaginary, mythological and scientific," and also a sovereign entity (Williams 2012). In this light, thinking on an island involves practices and imaginaries that deal with the discourse on modernity in aspects of colonization, nation-state, and the knowledge hierarchy.

The theoretical lineage of decolonization on islands has been extensively explored in Oceania post-WWII, viewing islands in a progressive and reflexive manner (Nadarajah and Grydehøj 2016). In terms of knowledge production and cultural

practices for islands, decoloniality theory and methodology aim to "avoid remarginalizing already marginalized actors" (Nimführ and Meloni 2021). Meanwhile, the decolonizing approach/decoloniality is viewed as a praxis, analysis, and process to approach the internal relation between modernity and coloniality (Quijano 2007). The study on islands echoes Derrida's statement that "there is no world, there are only islands"—a relational, non-modern, non-linear, and more-than-human thinking (Pugh and Chandler 2021, 34). Accordingly, this thinking on islands is a paradigm opposing the hegemonic, modern, mainland or "one world" thinking (Pugh and Chandler 2021). In other words, the continuous reflection on less developed islands characterizes them as "utopian islands as imagined sites of socio-political experiments," embodying "Utopia's narrative of its violent foundation" (217, 219). In modern times, Hainan Island adopted utopian imaginaries after Hawaii and Bali. The narrative of Hainan as "the third paradise" awaiting discovery and development was notably recounted by Chinese-Malaysian physician and epidemiologist Wu Lien-Teh (1879–1960) in his 1937 article titled "Hainan, the Paradise of China" in *The China Quarterly*. To achieve this future promise of the third paradise, according to Wu, the main idea was outlined: developing tourism infrastructure along coastal cities to attract international tourists, athletes, naturalists, as well as individuals interested in researching the ethnic groups' (Li and Miao people) culture in the mountainous regions.

These utopian visions of Hainan Island embody the desire to replicate the island-paradise model and the growing international recognition of Hainan Island's development in a globalized modern world. Specifically, the island as a tourist paradise is a romanticized narrative overlaying the extraction of tropical natural resources, the reinforcement of cultural exoticism, and the militarization and capitalization of ports. In this context, Hainan Island is perceived as a repository, enclave, and territory shaped by imperial perspectives, colonial aspirations, and nationalist reinterpretations. Similarly, Jeju Island, from 1963 to 1985, was planned and developed as a "Tourist Utopia" aiming to replicate the concept of Hawaii and intertwine it with the history of mainland South Korea (Tran 2022). In this vein, Jeju Island and Hawaii share similar qualities with Hainan Island, being developed as tourist paradises while also serving as naval bases and being continuously haunted by a colonial sensibility as a counter-utopian place for island identity in relation to nations' mainland and ideological politics.

Meanwhile, the cultural narrative of indigenous people, which contributes to the identity of Hainan Island, complicates the infrastructure-based modernization of Hainan Island. The Li people, considered the earliest inhabitants of Hainan Island, were particularly depicted and introduced to outsiders through the ethnographic observations and visual archives of early Western intellectuals and explorers. Between 1931 and 1932, German ethnologist Hans Stübel conducted two field trips to Hainan and documented his observations in the 1937 book *Hainan Ethnography* (Die Li-Stämme der Insel Hainan). Stübel highlighted that Hainan Island was experiencing significant changes due to the civilization movement and was in a state of dynamism (Guo, Wang, et al. 2013, 170–171). On June 26, 1937, Leonard Clark (1907–1957) and Nicol Smith (1906–1958) traveled from Hong Kong to Hainan Island and resided there for two months. They captured the vibrant life and rich culture of the Li people through a 37-minute video and hundreds of photographs, illustrating the diverse cultural landscape of Hainan Island. In Clark's 1938 article

published in *National Geographic Magazine*, he enthusiastically delineates his expedition on Hainan Island, beginning with "So, there is nothing left in the world to explore?" After experiencing village life, rituals of the Li people, and the natural environment of Hainan Island, Clark concludes that he returned to a civilized world and luckily left two days before Japan bombarded Hoihow on Hainan Island. Stübel and Clark not only represent Western outsiders' efforts in discovering and archiving the remote and exotic island through the indigenous people's life and culture but also reflect a method of ethnographic field trips and expeditions in search of native people contributing to modern knowledge production. This outlines a linear manner in the binary of gaze and being gazed at, native group and civilized world, coloniality and modernity. In this regard, Hainan Island as a paradise narrates its identity in geographical isolation and undeveloped place by outsiders, and the Li people are "subjected" culturally.

Subsequently, the utopian narrative of Hainan Island converged with unfinished colonial infrastructure projects, such as railroads and dams for the exploitation of natural resources, during the Japanese occupation from 1939 to 1945. The primary activity of the Japanese colonial regime was conducting surveys that contributed to colonial knowledge production. The exploitation of natural resources at the Shilu Iron Ore Mine in Changjiang Li Autonomous County by the Japanese colonial government serves as an example of colonial knowledge, governance, and assimilation on a tropical island. The investigation of Hainan began in 1939 with the report "Tentative Outline of Hainan Island Government Affairs," followed by exploitation in 1940. The primary objectives were military operations and security, driven by the need to investigate and export critical resources to compensate for Japan's resource shortages for war consumption. Hainan Island was categorized in the Southern Studies, along with Taiwan, as a colonial island for tropical and oceanic studies, according to "Taihoku Imperial University's Southern Studies (1937–1945)" (Xu 1999, 125, 29, 32–33). The academic interest in investigating Hainan was proposed in 1937 by scholars from the University of Tokyo, focusing on the fields of Anthropology and Agriculture. The Japanese imperial hierarchy of knowledge and colonizing strategy of an island further reinforced the imagery of Hainan as tropical, primitive, and uncivilized in the context of the Global South, where it was considered invisible, occupied, peripheral, and colonized (Dados and Connell 2012). Despite the modern knowledge structured for colonial exploitation of natural resources, the brutal violence embodied in colonial infrastructure construction in Taiwan has "overturned the colonial ideology of romanticizing tropical islands as paradise," as illustrated in journalistic reports from Tamura Taijirō's short story about the water power station construction at Sun Moon Lake (Kuo 2015). Sharing a similar colonial experience in infrastructural violence, Hainan Island not only exemplifies colonial railway construction forced labor, but also the involvement of Taiwanese soldiers in the Japanese army on Hainan Island complicates the re-colonial history between Taiwan and Hainan Island. In this vein, the colonial reality on Hainan Island serves as a counter-utopian reflection and resistance to decolonize an island.

From coloniality/modernity to socialist modernization, Hainan Island has reconceptualized its imposed utopian imagery of a tropical island paradise in ideological politics and propaganda, reconfigured by national capitals and global investments for infrastructure-led development. It mainly emphasizes Hainan

Island's position as an experimental area for global trade participation while attempting to establish its international reputation as a "paradise" for tourists and investors. In the process of reform and opening up, Hainan, as a Special Economic Zone, serves as a metaphorical "window," "test field," and "vanguard" for international exposure and tariff trade.[53] While Hainan Island is not the first Free Trade Zone in China since the 1980s, it is the largest one, featuring massive scale infrastructure development or island-scale planning in the process. Taking up the whole region of Hainan Island as a Free Trade Port (FTP) revokes the long-term efforts and desire to develop the island but struggles and fails in its economic growth and infrastructural constructions.[54] In 1984, during Deng Xiaoping's (1904–1997) southern tour, he predicted that "It would be a great success if Hainan's economy could reach Taiwan's level in 20 years." Then, Hainan underwent a series of reforms, such as the geo-administrative modification separating it from Guangdong as a new independent province of the PRC and its designation as a Special Economic Zone in 1988. Since then, Hainan Island has been claimed as the ideal less-developed frontier with its unique tropical qualities for the mainland:

> The Chinese desire both a remote laboratory-type environment in which to experiment with capitalist-style management practices and a modernised economy which can bring in much-needed foreign exchange and foreign technology. An island distant from Beijing but close to Hong Kong and Macau, such as Hainan, seems an ideal place to conduct such economic and political experiments. (Edmonds 1989, 169)

The utopian narrative of tropical paradise for islands is a modern paradigm for colonization, tourism, and economic-political experiments. Hainan Island has been articulated and archived as a utopian island largely due to its underdeveloped conditions with tropical natural resources, as well as the ethnographic depictions of the culture and life of Li people. The Japanese colonial regime on Hainan Island left a counter-utopian reality with unfinished modern infrastructure projects. Hainan Island remains less developed largely due to a lack of infrastructure construction until its socialist paradise narrative is refabricated in the establishment of the Free Trade Port. In the following section, the article delves into the role of the railway on Hainan Island to examine the relationship between the island's spatial and cultural identity and infrastructure development.

Development, Extraction, and Circulation: Hainan Island's Railway

The modern historical efforts of the administration on Hainan have reinforced a dominant narrative regarding the development and investigation of the island, particularly in terms of inland transportation and connections with the mainland. In

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[53] The propaganda vocabulary appears in Chinese as "window" (窗口), "test field" (实验区), and "vanguard" (先锋)

[54] While Hainan Island is not the first Free Trade Zone in China, it is the largest one. On October 16, 2018, Hainan became the fourth group of China Pilot Free Trade Zone, as approved by the State Council of the People's Republic of China. Subsequently, on June 1, 2020, the Central Committee of the Chinese Communist Party released the Master Plan for Hainan Free Trade Port (FTP). It is characterized by its adherence to the leadership of the CCP and its alignment with socialist principles. In terms of the timeline, the goal by 2025 is to achieve a primary level of Hainan Free Trade Port focused on free trade and zero-tariff investments. By 2035, it aims to be upgraded with well-developed operations and liberalization, facilitating the movement of capital, people, data, and goods. Ultimately, by the mid-21st century, Hainan Island will become a comprehensive and highly impactful free trade port. The master plan further outlines three circular scopes defined by policy-making strategies: The first scope involves opening up Hainan Island to outbound countries and regions, serving as the first front line. The second scope focuses on the control and integration of the island with other territories of mainland China. The third scope emphasizes freedom on the island.
See *The Central Committee of the Communist Party of China and the State Council issued the overall plan for the construction of Hainan Free Trade Port.* Xinhua News Agency. June 1, 2020. Accessed December 12, 2023. https://www.gov.cn/zhengce/2020-06/01/content_5516608.htm

1886, Zhang Zhidong, the Viceroy of Two Guangs (Guangxi and Guangdong) in the late Qing dynasty, initiated a series of development attempts to explore Hainan Island. These endeavors included cartography, building artillery batteries, reinforcing the militarization of Yulin Harbor, and installing electric wires across Qiongzhou Strait. Zhang Zhidong was also the first person to propose railway construction in Hainan's mountainous regions. After Zhang Zhidong, a comprehensive and modern development plan for Hainan was designed by Sun Yat-sen in 1911. In his article "International Development of China" (published under "Plans for National Reconstruction" in 1920), Sun proposed establishing Hainan as an independent province. The plan included constructing a 100-mile railway from Huazhou to Hai'an port on the Guangzhou side of Qiongzhou Strait, with a ferry connection to Hainan Island. It was only on December 12, 1936, that the actual investigation and official visits to Hainan, organized by representatives of the government of the Republic of China, took place. Led by the Chairman of the National Economic Council, T. V. Soong, these official visits steered towards the decision to establish the railway administration of Qiong Prefecture (the former official name of Hainan) with an investment of 30 million.

Besides the government's development efforts, in the 1930s and early stages of World War II, international attention also focused on the exploitation of Hainan due to its "mineral resources, forests, and abundant agricultural products." According to *The China Critic* (1937), while the Yulin harbor has been developed as a naval station, other harbors like Tsinglan harbor are in fair condition if the marine coral reef is blasted. However, the most crucial factor for Hainan's development is political stability. As analyzed by *Hong Kong Ta Kung Pao*, the Japanese occupation of Hainan in 1939 indicates their intention to invade Guangxi and establish a naval station to control southern China. This is also related to the cooperative approach of France and Great Britain towards Spanish issues, as well as the collaboration between Great Britain and the United States in the Far East.[55]

Ultimately, the Japanese occupation of Hainan had a substantial and far-reaching impact on the development of the island, building upon the urban development that occurred from the Qing dynasty to the Republic of China (Zhang 2008, 79–83). However, at its core, the main goals of Japanese colonization of Hainan during World War II were the extraction of minerals and the establishment of naval bases to facilitate future military requirements and invasions of the mainland and other areas in East Asia. As part of this process, railway construction was implemented as transportation infrastructure on Hainan Island, facilitating the transfer of the island's natural resources to ports under Japanese colonial military strategies. The exploitation of the Shilu Iron Ore Mine in Changjiang Li Autonomous County by the Japanese colonial government serves as an example of colonial knowledge, governance, and assimilation on a tropical island. The investigation of Hainan began in 1939 with the report "Tentative Outline of Hainan Island Government Affairs," followed by exploitation in 1940. The primary objectives were military operations and security, driven by the need to investigate and export critical resources to compensate for Japan's resource shortages. Hainan Island was included in the Southern Studies category, along with Taiwan, as a colonial island for tropical and oceanic studies, according to "Taihoku Imperial University's Southern Studies (1937–1945)" (Xu 1999, 29, 125, 32–33). The academic interest in investigating

[55] *The China Critic*, 1939.

Hainan was proposed in 1937 by scholars from the University of Tokyo, focusing on the fields of Anthropology and Agriculture. The Japanese imperial hierarchy on knowledge and colonizing strategy of an island further reinforces the imagery of Hainan as tropical, primitive, and uncivilized in the context of the Global South, where it was considered invisible, occupied, peripheral, and colonized (Dados and Connell 2012). On the other hand, re-examining the concept and imaginations of an island also serves as a counter-utopian reflection and resistance to decolonize an island.

In this context, the relationship between the islandness of Hainan and the railway as a form of infrastructure demonstrates the reflection on both decolonial and development perspectives. During the Japanese colonial period of Hainan (1939–1945), connected by the railway route to export Shilu's Iron Ore Mine, the development and establishment of port locations along Hainan's coastal areas were prominent military infrastructure. Basuo Port in Dongfang city was built for Shilu's mine exportation. However, due to the port's shallow water depth, a light rail route was constructed from Shilu to Sanya's Yulin harbor, connecting the two mines for iron ore of Shilu and Yulin. This mineral exportation was closely tied to the military infrastructure and war support system, which posed a threat to the South Pacific region prior to the cooperation between Great Britain and the United States in the Far East.[56] Consequently, a series of colonial infrastructure construction projects centered around mining resources were left unfinished and unsuccessful, considering Japan's overall military targets. Hainan also remained an isolated part of China under Japanese occupation (Phillips 1980).

After World War II and the Japanese occupation of Hainan in 1945, followed by the Chinese Civil War (1945–1949) which resulted in the People's Republic of China (PRC) taking over Hainan Island, the Shilu iron ore mine resumed operations in 1957 and was continuously exploited until it was exhausted in 2017. On one hand, the Shilu Iron Ore Mine was recognized as the largest high-grade iron ore deposit in China and was also hailed as "Asia's largest iron ore reserve" (Li 2018). On the other hand, it raises questions about the historical legacy and significance of Hainan's railway, which evolved from a Japanese colonial infrastructure to a communist development.

Today, the circular high-speed railway on Hainan Island, which began operations on December 30, 2015, is claimed as the world's first round-island rail line in a tropical region (Figure 3.9). This three-hour journey around the island is seen as a modern approach to tourism and a technological achievement of infrastructure-oriented national imagery. In particular, Haikou and Sanya, as two major port cities, link the West and East railway lines. The current high-speed railway on Hainan Island highlights the coastal sites that were significant during the Japanese occupation, which had a profound and lasting impact on the island's development, building upon the urban growth that took place from the Qing dynasty to the Republic of China (Zhang 2008, 79–83). Although the Japanese colonial regime attempted to replicate the colonial experience in Taiwan (including resource investigation, tropical medicine, "police administration," special propaganda, and economy building) to "make Hainan the second Taiwan," the limited experience was hard to apply to the Shilu iron mine (Zhong 2023).

[56] *The China Critic*, 1939.

Figure 3.9: Illustration of Hainan's Ring Railway at the Hainan Railway Museum (*Source* Photo by the author, 2023)

On one hand, the enduring comparison of Taiwan with Hainan is rooted in the colonial development of the islands. On the other hand, the railway, as one of the few Japanese colonial infrastructure projects on Hainan Island, reveals the underlying motivation and limited development of the island. Connected by the railway route to export Shilu's Iron Ore Mine, the development and establishment of port locations along Hainan's coastal areas are prominent military infrastructure. Basuo Port in Dongfang city was built for Shilu's mine exportation. However, due to the port's shallow water depth, a light rail route was constructed from Shilu to Sanya's Yulin harbor, connecting the two mines for iron ore of Shilu and Yulin. This mineral exportation was closely tied to the military infrastructure and war support system, which posed a threat to the South-Pacific region prior to the cooperation between Great Britain and the United States in the Far East (The China Critic 1939). After World War II and the Japanese occupation of Hainan in 1945, followed by the Chinese Civil War (1945–1949) which resulted in the People's Republic of China taking over Hainan Island, the Shilu iron ore mine resumed operations in 1957 and was continuously exploited until it was exhausted in 2017. On one hand, the Shilu Iron Ore Mine was recognized as the largest high-grade iron ore deposit in China and was also hailed as "Asia's largest iron ore reserve' (Li 2018). More importantly, it raises questions about the historical legacy and significance of Hainan's railway, which evolved from Japanese colonial infrastructure to socialist development.

As part of the Free Trade Port construction, the intra-island high-speed railway on Hainan Island plays a role in the tourism industry. However, as Baldacchino (2008) argues, "transport infrastructure does not guarantee economic and social progress," nor does it hold "the promise of serving as development panaceas." CGTN (China Global Television Network) has promoted that "Hainan's high-speed loop train is the best option to explore the island," listing several major cities such as Haikou, Wenchang, Qionghai, Wanning, and Sanya.[57] In this infrastructural landscape for tourism circulation, a physical and ideological circle is created on the island by the

[57] See article "Exploring China's Hainan on world's first circular high-speed railway." March 24, 2019. Accessed May 12, 2023. Accessed December 12, 2023. https://news.cgtn.com/news/3d3d514d7855544e33457a6333566d54/index.html

timescale and capital circulation in the transport infrastructure for the island's administrative locations in the coastal cities. These cities are connected by the circular island high-speed railway, promoting the concept of the "three-hour economic circle."[58] This economic conceptual circle contains three rings of encirclement: the largest, easily accessible coastal circle populated by Han Chinese and international tourists; the second largest interim circle with Li and Miao people; and the central mountain circle of the Five Finger Mountain for Li people. The central circle in the mountains also served a military strategic role as a "communist rear area base."[59] Yet, historically, the original aboriginal ethnic group on Hainan Island, the Li people, were driven into the central and western mountainous areas by the Han Chinese who immigrated to Hainan and occupied the northern and eastern plains areas (Feng and Goodman 1997, 56).

In the infrastructuring process, a physical and ideological circle of the island is created by the time scale and capital in the island's transposition for administrative locations of the island's coastal cities. These cities are connected by the circular island high-speed railway, promoting the concept of the "three-hour economic circle." This circle contains three rings of encirclement: the largest easy-access coastal circle populated by Han Chinese and international tourists, the second large-size interim circle with Li and Miao people, and the central mountain circle of the Five Finger Mountain for Li people. The central circle in the mountains also serves a military strategic role as a communist rear area base. Thus, this infrastructure circle on Hainan Island fundamentally embodies a continental mindset, projecting the totality of an island. The continental logic for totality and facilitation gives rise to the communist fantasy, conducted through the physical possibility of the nation's massive infrastructure projects. In Zheng Wenguang's 1958 fictional novel *Communist Rhapsody*, he writes,

> Above their heads floated an island, covered with coconut trees—it was Hainan Island, with a long levee connecting it to the mainland. Just then an electric train thundered across the levee. It was just like a real train, except of course somewhat smaller. This meant that the Qiongzhou Strait levee had been completed, and now electric trains departing from Beijing could reach the Yingge Sea in only 48 hours.[60]

Additionally, the island represents a fantasy of reunification as part of a communist utopian space. In *Communist Rhapsody*, the narrative showcases the impressive achievements of communism, stemming from technological advancements and infrastructure projects within an ongoing communist "permanent revolution." The ocean itself is portrayed as a factory that produces various products:

> Next came a large ocean factory: in one side went surging, frothing ocean water, out the other side came cloth, grain, and construction and industrial materials. The all-out development of my country's oceans had finally begun! (Zheng 1958)

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[58] See Xinhua News article "海南: 2025 年力争实现全岛 3 小时通达" at http://www.xinhuanet.com/politics/2022-05/13/c_1128646792.htm

[59] Refer to *Zhonggongzhongyangshujichu dui qiongyagongzuo de zhishi,* 1940, 11, 17 (中共中央书记处对琼崖工作的指示 1940, 11 月 17 日)

[60] The text is translated by Adrian Thieret, 2021, MCLC Resource Center Publication. Accessed November 12, 2023. https://u.osu.edu/mclc/online-series/communist-rhapsody/

Similar to the slogan of the "three-hour economic circle," this novel boldly imagines future transportation that could take travelers from Beijing—the capital of the People's Republic of China—to Yingge Sea, the farthest western coastal town on Hainan Island, within just two days. The timescale, facilitated by communist transportation infrastructure, highlights the remote location as a destination and a testament to the mainland's modernization efforts. The occupation and conquest of islands are means of constructing the nation-state. In the historical context of Mao's China, there were ideological tensions with capitalist nations that ultimately led China towards capitalism (Duara 2021, 149). For the Hainan Free Trade Port, the idea of "Enriching the Island and Strengthening the Army" still serves as the dominant guidance and propaganda narrative, focusing on economic development and militarized sovereignty. While the development strategy on Hainan Island, under the Special Economic Zone, continues to evolve through infrastructure projects like the railway, the interpretation of Hainan's railway history remains less coherent. It straddles nationalist, colonial, and socialist narratives, as seen in Hainan's Railway Museum, which will be discussed in the following.

The totality of the island is embodied in the circular island high-speed railway, which geologically enclaves an island. The historical root of spatial enclave started with the transportation system embedded in the mountains of islands and islands on the sea. The Ming scholar-official Hai Rui (1514–1587) proposed building a crossroad in the ethnic Li people's residential area, around the Five Finger Mountain area, in order to resolve the Li's disputes. Later, the Qing imperial general Feng Zicai (1818–1930) inscribed a cliff inscription "open up deserted mountains by hands," officially establishing the crossroad transportation from the mountains of Li villages to the southern port. The control over and governance of the Li people are not only reinforced through the transportation infrastructure but also serve as a desire to shape the island in exclusive circles. Hainan's island spatiality, with its connectivity and less-developed economic conditions, acknowledges the infrastructural desire in mega-infrastructure projects in a scalar method. However, the high-speed railway of Hainan Island focuses on inter-island circulation for tourist destinations rather than the necessary connection to solve the global-island connectivity problem. As Baldacchino asserts, "a railway as transport infrastructure is essentially antithetical to island life" (2008, 31), the high-speed railway on Hainan Island performs a speculative circulation for its tourist industry. It also considers the speculative future construction of the Free Trade Port along with issues of island environment, tourist population, international investments, and ideological politics.

On the other side, museums expose the symbolic or representational dimension of spatial production (Lefebvre 1991) by fabricating historical memory, cultural narration, and architectural legacy. In this spatial context, Hainan's Railway Museum not only intertwines with the unsettled Japanese colonial history in architecture and transport infrastructure, involving nationalism and socialist construction on the railway, but also investigates how public space and visitors interact with and experience the historical narration and spatial experience of Hainan's transport infrastructure. To provide a lively and interactive depiction of the railway history in a spatial context, I examine a specific visiting experience at the Hainan Railway Museum in Dongfang city. This museum, located near Basuo station, is the only railway museum on Hainan Island. The main building, constructed in 1941, used to serve as Japan's military operation headquarters. Today,

the first floor of the main building showcases the early railway history of Hainan, spanning from the late Qing dynasty to the end of the Japanese occupation in 1949. The second exhibition hall documents the development and construction of Hainan's railway from 1950 to 2009. The third exhibition hall showcases the circular island high-speed railway, covering the period from 2010 to the present. In addition to displaying a collection of locomotives from the Japanese occupation and the Republic of China, including the Japanese K3 train for mineral transportation built in 1939 and the special train made in Japan in 1941 for Chiang Kai-shek and Soong Mei-ling (Figure 3.10), the museum serves as an official archive center and educational facility. It also portrays the intricate and interconnected railway lineage and narratives of nationalist awareness and ideological propaganda in a non-linear historical sense.

Figure 3.10.1: No. 1 Exhibition Hall at the Hainan Railway Museum, which the building was the headquarters of the Japanese military operations (*Source* Photo by the author, 2023)
Figure 3.10.2: The official train, made in Japan in 1941, exhibited in the outdoor space at the Hainan Railway Museum (*Source* Photo by the author, 2023)

In fact, both the museum visitation experience and institutional operation reveal conflicting and convoluted interpretations of Hainan Island's railway history as an educational and cultural value for tourist experiences. The museum underwent renovations and reopened on May 18, 2021. During my visit in May 2023, it was supposedly open to the public, but exclusively for group visits arranged by schools or official departments for educational purposes. After a substantial period of communication and waiting, the museum's head official eventually arrived after the lunchtime break and granted me access upon presentation of my department's introduction letter for research purposes. Similarly, according to an online post from 2022, visitors were unable to access the exhibition hall; they were only permitted to stroll through the museum's courtyard and observe the displayed trains and buildings from the exterior. Additionally, disputes and discussions frequently arose between visitors and the gatekeeper.[61] This confusing museum situation can also be observed from the online "message board for leaders" on *People's Daily* (which is the official newspaper of the Central Committee of the Chinese Communist Party). One comment, posted on February 24, 2023, complained to the municipal party secretary of Dongfang city about the lack of hot water in the museum and the closure of exhibition halls during opening hours. In response, the official feedback on March 3, 2023, is as follows:

1. The Hainan Railway Museum is an enterprise that has not been officially registered.

[61] A visitor's blog described a vivid and contradictory experience to The Hainan Railway Museum in 2022. https://www.163.com/dy/article/H1SEKULR0544DDG3.html

2. Located in Hainan's Free Trade Port, the museum offers free admission but faces difficulties in terms of service, funds, and operation.
3. The museum's purpose is to preserve Hainan's railway history and serve as an educational base for new railway staff, as well as provide patriotism education for primary and secondary school students nationwide.
4. Lastly, the museum currently does not accept individual visitors.

These controversial regulations and operations of the only railway museum in Hainan not only highlight the public role of the museum space but also demonstrate the conflict between the official recognition and promotion of the representation of railway legacy and lineage in Hainan's Special Economic Zone. Firstly, Hainan's railway history is perceived both as a historical and spatial representation of the Japanese colonial legacy and war violence. Secondly, the development lineage of Hainan, as mediated through its transportation infrastructure, has not been fully incorporated into the socialist narrative of the Hainan Special Economic Zone. This ambivalent and ambiguous attitude reflects the disjuncture from top-down administration, as well as the colonial and political tensions that exist within "Hainan's communities, mainlander–islander" as commented by Feng and Goodman (1997):

> At the same time there are fairly obvious limits to using any colonial perspective in the interpretation of Hainan's development, even the presumably more appropriate concept of 'internal colonialism' developed after Lenin by a series of commentators. The most important of these limits is that none of Hainan's communities—all of whom claim to speak for the province—is advocating revolution and independence. The arguments are about control and relative autonomy within the Chinese state, not about separation and the creation of entirely new political entities. Here a comparison with Taiwan—with similar mainlander-islander social and political conflict since 1949—may well be instructive, for Hainan had developed from cultural integration, assimilation and compromise over several centuries even before 1949. (80)

The limitations of using a colonial perspective to comprehend Hainan Island's position in Japanese colonial construction and its relationship with Taiwan highlight the complexities and dilemmas of examining railway infrastructure history and cultural politics. The development and advancement of railways as transportation and technological infrastructure play a crucial role in this process. From the late Qing dynasty to the Republic of China, railways served as the essential physical medium for the nation. Hainan Island, being the farthest destination of a nation's railway system, holds an unparalleled place in this discourse. In the context of Japanese occupation, the absence of railways was seen not only as a limitation for mining exportation but also as a critical transport infrastructure to support Japanese colonialism in exploiting natural resources, producing knowledge about tropical islands, and positioning Hainan as part of Southeast Asia and the Global South. While the completion of the circular island high-speed railway in 2015 is regarded as a contribution to Hainan's modern identity for the Free Trade Port construction, the ambivalent cultural identity of the island as seen in the Hainan Railway Museum is still a contested one.

Before the Free Trade Port: Slow Infrastructural Transformation in Hainan's Early Socialist Construction

Although the lack of material infrastructure and financial support from the mainland acknowledges Hainan Island's infrastructural reality in its underdeveloped imagery, it is a prehistory of the Free Trade Port for the nation's desires and the collapse in reality for the island.

In 1950, following the Chinese Civil War, the CCP emerged victorious over the KMT. Subsequently, in 1951, the People's Republic of China (PRC) assumed control of Hainan as an administrative region under Guangdong province. Hainan was later upgraded and established as an independent province in 1988, with the establishment of an administrative office for Sansha (meaning "three sands"), encompassing the archipelagos of Central Sand, West Sand, and South Sand. During Mao's efforts to develop and modernize China and Hainan, the island encountered challenges such as backward infrastructure and resistance from the local Li and Han populations, who opposed the plans and interventions of external parties (Murray 2018, 184). Other groups involved in Hainan's development also included overseas Chinese who returned and young individuals who were sent down to the island.

The construction of infrastructure in Mao's China exemplifies socialist propaganda and the voluntary labor of the community, aimed at achieving a utopian society. In this context, the Chenxiangwan Reservoir, built in 1982, represents and reflects the history and relationships between Chinese-Indonesians, Chinese Malaysians, and the Xinglong Overseas Chinese Farm. This farm, established in 1951 and located in Wanning City on the central southern coast of Hainan, is one of the largest overseas Chinese state farms in China. Against the historical backdrop of anti-Chinese sentiment in Malaysia and Indonesia during the 1950s and 1960s, overseas Chinese returned to China. The early construction of the farm took place in a harsh environment without basic infrastructure such as electricity. It was not until the Chenxiangwan Reservoir was built in 1982, with subsidies provided by the Food and Agriculture Organization of the United Nations, and completed in 1983 during the Sixth Five-Year Plan, that the issue of lighting was resolved. Returned overseas Chinese faced intense manual labor and physically demanding work. They had to participate in "socialist construction" despite a lack of training or employment options (Godley 1989, 333–334). Xinglong Overseas Farm cultivates rubber trees, which are important military resources, as well as pepper, coconuts, and coffee. It has become one of the largest tourist destinations in Hainan, following Sanya and Haikou. The history of overseas Chinese farms in socialist China reflects the complex interactions between the nation and Southeast Asia, particularly in terms of political issues and cultural blending. During Mao's era, the farm served as a base for overseas Chinese immigrants, providing extra-infrastructural space to "weaken their identity and expedite their assimilation into the larger society" (Han 2013, 56). The overseas Chinese state farm facilitates not only socialist infrastructure for communist construction in hardship but also cultural infrastructure for complexifying the identity of overseas Chinese as they integrate into socialist culture.

Songtao Reservoir, for example, was one of the massive infrastructure projects during the First Five-Year Plan (1953–1957), which marked the beginning of the hydropower engineering project of Hainan Island. In the communist narrative, the

construction of the reservoir often represents a collective memory and spirit, characterized by the large mobilization of labor and the pursuit of a communist utopian future. A similar example is the Ming Tombs Reservoir, built in 1958 in Beijing's Changping district, which exemplifies the discourse of relying on massive labor forces and overcoming hardships in the absence of machinery. Correspondingly, the attitude and actions demonstrate the values of "hard work" (*jianku fendou*) and "daring to fight and daring to win" (*ganpin ganying*). Metaphorically, the Songtao Reservoir was referred to as "the first key to forge Hainan," according to a Haikou Daily report.[62] This collective memory is embedded in the infrastructure construction and goes beyond the physical aspects of the infrastructure itself. It serves as a vessel to embody the spirits ("Songtao Spirit", *songtao jingshen)* for a collective objective (communist utopia) and stands as spatial evidence of landscape reform during Mao's era.

In Mao's China, the exploration of the socialist commune on Hainan Island since 1950 showed initial development through basic infrastructure projects. It was only in 1988 that Hainan was established as a province and Special Economic Zone. A series of policies to develop Hainan resulted in an opening-up process and attracted incoming human resources. Between autumn 1987 and summer 1988, an official report titled "One Hundred Thousand Talents Coming Down to Hainan"(*shiwanrencai xia hainan*) highlighted individuals who participated in the socialist construction of the Hainan Special Economic Zone. 90% of these intellectuals and young students had junior college degrees, and 85% of the population was under 35 years old. This significant mainland immigration was facilitated by the policy and showcased the efforts of immigrants from the mainland to contribute to the economic development and construction of Hainan Island. The island is undergoing changes due to policy-making, which marks a historical turning point. It also represents working opportunities and a place for individual aspirations.

The ambivalent life experiences and encounters of sent-down youth during the Cultural Revolution to the opening-up period illustrate the transformative social and cultural environment of Hainan Island's development and its interactions with mainlanders (Figure 3.11). The 1984 film *The Coast of the South*, produced by Kunming Film Studio, tells a story of sent-down youth's "hanging back" experience between Hainan Island and Guangzhou. The historical background alternates between memories of the sent-down youth years during the Cultural Revolution and the reality of current life. Individuals' life choices intertwine with the nation's future. The nostalgia permits the protagonist's teenage dreams, romance, and imaginations as a sailor searching for the coast of the South. The reflections on the experiences of sent-down youth are described as "neither proud of nor shameful." The collective memories and struggles of the 10 years for sent-down youth transformed into the aftermath of the historical event as individual choices and fates. Through poetry recitation and literature, the Five Finger Mountains represent Hainan Island's picturesque landscape. The recurring theme lingers back and forth between the remoteness and fantasy of the island and harbor as seen by the protagonist. The poetic narrative of the island contrasts with the individual's struggles in the

[62] "Dunzao hainan de di yibayanshi—baxun laoren chuangzuo changpianxiaoshuo jiang songtaoren gushi" (锻造海南的第一把钥匙—八旬老人濂创长篇小说讲松涛人故事). Haikou Daily, June 9, 2015. Accessed June 12, 2023. http://szbold.hkwb.net/szb/html/2015-06/09/content_4385.htm. For the Songtao Reservoir, the mobilization slogan was "people build the dam, the dam is destroyed, people die."

historical grand narrative. The rubber farm, as an economic-agricultural place, also embodies the spirit of opening up and struggle. In this light, this ambivalent mood ties to Hainan Island as hopes for future development in farm production and in the opening-up era.

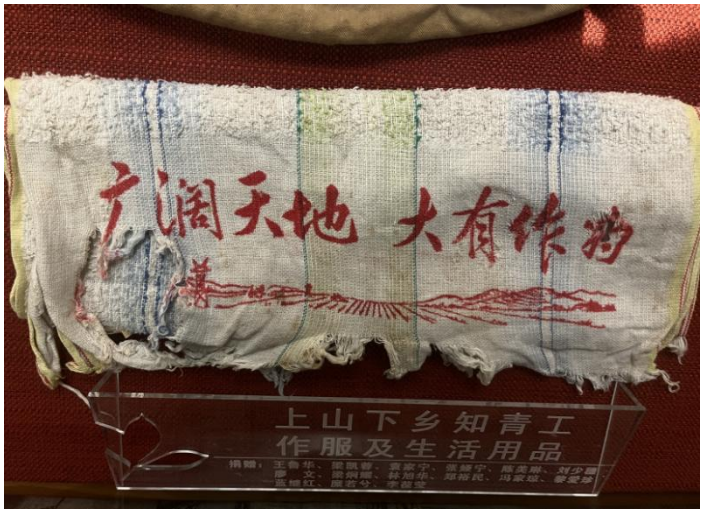

Figure 3.11: The exhibit of the towel of the sent-down youth is displayed at the Hainan State Farms Museum (Natural Rubber Museum). The translated phrases are "Vast World, Great Potential" (*Source* Photo by the author, 2023)

The film portrays the spatial and affective connections between mainland Guangzhou and Hainan Island through the experiences of sent-down youth. It delves into themes of home versus remote places, collectivism versus individualism, and stagnation versus hope. The film's title, The Cost of the South, metaphorically represents the journey of life's pursuit rather than simply depicting a natural shoreline, in which the 1980s in China marked a shift from political movements to opportunities for openness. In this context of historical transformation, Hainan Island's development symbolizes both the nation's future and individual aspirations. Yet, beneath today's Free Trade Port master plan lies a predominant continental mindset. This holistic approach, facilitated by artificial islands around Hainan and in the South China Sea, also addresses the collapse of global capital and island fantasies—topics I analyze next.

Artificial Islands as Sovereign Subject and "Ocean Media":
Hainan Free Trade Port's Tourism and Militarized Zone

Infrastructuring an island reflects the ontology of an island. Deleuze's "Desert Islands" points out the radical ideas on thinking about islands: "the essence of a deserted island is imaginary" and "the beginning again" (Deleuze [1953] 2004, 12, 14). Initially, imagination and fantasy arise from humans' desire to recreate relations with islands. Paradise is a typical collective imagination of an island in capitalism and tourism, fulfilling mainlanders' desires for a refreshing experience and unique natural resources, distinct from the continent. This also contributes to the knowledge for encyclopedias. In this context, controlling and reforming an island demonstrates a master plan and the consequences of the island from a continental thinking perspective. This manifests the totality of the island and territorial reclamation. The totality of the island is embodied in the circular island high-speed railway, which geologically enclaves an island.

In definition, there are two types of islands: continental islands and oceanic islands. Continental islands are formed when they separate from a continent, like Hainan Island. Over 100 million years ago, the Five Finger mountain and other hills emerged before the island became geologically independent from the sea level. The Qiongzhou Strait connects the mainland and Hainan Island, which later moved south and created more islands from the mainland. On the other hand, oceanic islands, such as the Sanshan archipelagos in the South China Sea, are a more distinct and fundamental type of islands. These islands serve as a reminder that the sea covers the earth, while continental islands indicate that the earth exists beneath the sea (Deleuze [1953] 2004, 9). The third type of islands, known as extra-islands, are artificial islands used for infrastructure. These islands do not exist naturally. Instead, they symbolize sovereignty, territorial claims, and capital practices. They highlight the differences between nation-states and islands. In the case of Hainan Island and the archipelagos in the South China Sea, the presence of these artificial islands demonstrates repetitive spatial production, similarities and differences, and the materiality and metaphors of archipelagic thinking (Stephens and Miguel 2020, 7) (Figure 3.12).

Figure 3.12: Artificial Islands under construction near Sanya Phoenix International Airport (*Source* Photo by the author, 2023)

Artificial islands are extra-infrastructure. They claim extra lands between the mainland and the island, replicas of islands, and temporary land. The first kind of artificial islands is for tourism development in consumerism and temporary residences. The island, as a paradise, is constantly popularized as "Tourist Utopias." In essence, this concept of a "manageable utopia," coined by Orvar Löfgren (1999), facilitates the movement and investment of capital by intensifying labor, work, and leisure (Simpson 2017, 13–14). These Tourist Utopias share similarities with Communist Utopias, both being designed for manageability and predictability in tourist infrastructure. However, they also expose the desire for materialization and spatial practice, which can lead to "spectacular failure" (Simpson 2017, 17).

In these situations, propaganda tends to conceal potential crises and shortsightedness in capitalism and policy-making. In the case of Hainan Island, the master plan to construct Hainan International Tourism Destination was elevated to a national strategy in 2009. Despite the presence of air and land transportation infrastructure, the infrastructure for tourism inherently attracts both domestic and global capital for real estate in China, leading to the occurrence of *lanwei* architecture (unfinished

high-rise buildings). In Hainan, the "Fever of Real Estate Market" with over 80 billion in capital from 1993 to 1994 is still haunting the island. Between 1994 and 1997, the real estate market cooled down, leaving more than 600 unfinished buildings. The capital invested in real estate has had a significant impact on Hainan Island and the mainland. The collapse of Evergrande Real Estate (the chairman of the board was under investigation for suspicion of illegal activities on September 28, 2023) was linked to the development of the massive artificial island groups known as Ocean Flower Island, located off the north coast of Danzhou (Figure 3.13). Consisting of three independent offshore islands, the middle island, No. 1, is designed for hotels, entertainment, and theme park facilities. The other two islands, No. 2 and No. 3, are designated for residential areas (Figure 3.14). The disputes over the demolition of 39 illegal high-rise buildings on No. 2 Ocean Flower Island by the Danzhou Municipal People's Government were settled at the end of 2022. Instead of demolition, the buildings are being transformed into apartment hotels, commercial spaces, retail outlets, and catering establishments. Another critical issue was land reclamation destroying coral reefs and the ocean ecosystem. In addition to using land for tourists, the landscape of *lanwei* architecture occupies Ocean Flower Island, which includes a European and East Asian style shopping street, villas, and high-rise buildings. The real estate collapse and coastal crisis of land reclamation in the case of Ocean Flower Island highlight the problems associated with artificial islands as tourist infrastructure.

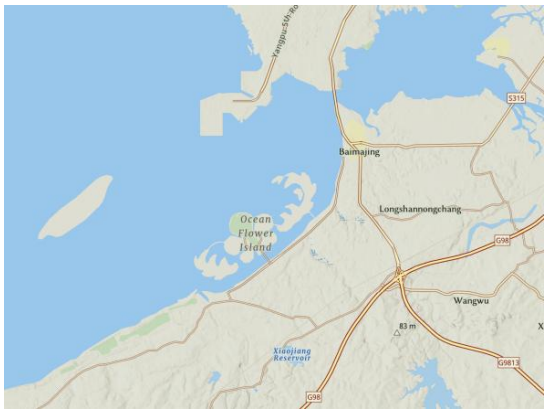

Figure 3.13: (left) Map of Ocean Flower Island (*Source* National Geographic Maps)
Figure 3.14: (right) The night view of No.1 Island looking from the No. 2 Island of Ocean Flower Island (*Source* Photo by the author, 2023)

The artificial islands of Hainan are intentionally and strategically aimed at both tourism and military purposes, specifically to demonstrate jurisdictional sovereignty. One of these islands, Phoenix Island, officially opened in 2015 and is affiliated with Sanya Bay. It was designed for leisure and residential purposes, as well as serving as a cruise ship terminal (Figure 3.15). However, Phoenix Island is more than just a tourist destination. It is located in the south of Sanya and faces the South China Sea, which is known for its "feverish zone of military island-building" (Bonnett 2020, 68). Sanya's Yulin Port has historical significance as it was once a Japanese navy port and later became the naval base of the People's Liberation Army Navy. Currently, Phoenix Island functions as both a cruise ship terminal and a base for jurisdictional declaration. Since 2020, Hainan Free Trade Port has been working towards enhancing a top-tier internal tourist island with high-quality service and facilities. One of its objectives is to further develop tourism for Xisha (West Sand, also called Paracel Islands) and desert archipelagos in the South China Sea. Phoenix

Island serves as a terminal for two cruise ships: Coconut Fragrance Princess Cruise (2013–, now called Changle Princess Cruise) and Nanhai Cruises (2016–). In 2013, the voyage of the Coconut Fragrance Princess was regarded as a demonstration of contentious territorial and jurisdictional disputes over the Paracel Islands with Vietnam as imperialism (Tatlow 2013). Thus, the tourist infrastructure, such as the cruise ship, implies the temporal-spatial practice that asserts the sovereignty of these archipelagos in the South China Sea as well as the potential efforts for offshore oil exploitation.

Figure 3.15: Phoenix Island (*Source* Photo by the author, 2023)

In addition, the oceanic islands consist of coral reefs and land reclamation. Woody Island (Yongxing Island in Chinese and Phu Lam Island in Vietnamese) is the largest island in the South China Sea. Instead of being an island city, it serves as a military base to exert control over the South China Sea. Erin Huang suggests that beyond its military significance and its role in the "global land-sea transformation" as an emerging logistics empire, the ocean media represented by satellites reveals and redefines our understanding of offshore transformations. Huang interprets the artificial islanding as a new exercise of power and repeatable technology, transforming the scale of the ocean into a weapon for territorial expansion (Huang 2021, 189–190). The digital ocean media and imaging technology play a defining role in territorial and material capitalist accumulation within an infrastructural network. In this context, the technologization of the ocean replicates the concept of artificial islanding in Keller Easterling's analysis of "Zone" (2014, 36), which acts as a "powerful multiplier." Easterling's concept of "extrastatecraft" refers to the reformulation of infrastructure space through digital and spatial software, revealing different forms of sovereignty and domestic and transnational jurisdictions (2014, 9). Hainan Island, which functions as a Zone of Special Economic Port and engages in artificial islanding through oceanic media and extrastatecraft, can be seen as an extra-infrastructure that is produced and reproduced through the power practices of nation-states that dominate islands, global capitals, and the fantasy of islanding.

Infrastructuring Hainan Island between Land and Sea

The infrastructure development of Hainan Island, in fact, does not have a long history in terms of modernization and globalization. In the early 1990s, Hainan Island still faced difficulties with transportation infrastructure and hotel facilities, with insufficient electrical and water supply. Around 1992, only 4% of Japanese

respondents in a survey said they had ever heard of Hainan (Cheung 1993). It was not until tourist infrastructures, such as the Sanya Phoenix International Airport in 1994 and the Haikou Meilan International Airport in 1999, were established in the past two decades that massive infrastructure development took place. However, along with this development came new challenges and issues, such as the collapse of the real estate market, environmental protection concerns, and South China Sea territorial disputes. In the broader context of today's discourse on the Global South, Hainan Island also represents a rethinking of geopolitical power and repossession in technology and digital oceanic media. In this sense, oceans and archipelagos offer an alternative understanding of islands and their relation to the planet. As Steinberg and Peters (2015) state: "The oceans not only challenge the modern state-based territorial conception of power through fluid boundary-crossings of all kinds, but also by posing the problem of reach, instability, resistance, mixing, and separation in the voluminous sphere of Earth" (251).

The manifold metaphors and fantasies used to construct the Special Economic Zone infrastructure celebrate a communist future for Hainan Island (Figure 3.16). However, it is still haunted by the dominant narrative of development and belated remedies. The questions that remain are: Whose island and paradise? Whose disaster? The island serves as a frontier, not as an experimental ground for global capitals, but as an embodiment of fragility and threats originating from the (Global) South. These threats include labor forces, natural forces like climate change, and the rising sea levels that deconstruct, reshape, and challenge the existing totality. In the future imagery of Hainan Island for international tourism, Hawaii serves as a historical reflection and a representation of development crisis. The residents of Hawaii struggle with problems stemming from colonialism, military occupation, tourism, food insecurity, high costs of living, and the effects of a changing climate (Aikau and Gonzalez 2019, 1).

Figure 3.16: Propaganda Billboard in along the road in Sanya, says "accelerating the development of Hainan into a free trade port with Chinese characteristics and global influence" (*Source* Photo by the author, 2023)

The occupation and conquest of islands are means of constructing the nation-state. In the historical context of Mao's China, there were ideological tensions with capitalist nations that ultimately led China towards capitalism (Duara 2021, 149). For Hainan Free Trade Port, the idea of "Enriching the Island and Strengthening the Army" still serves as the dominant guidance and propaganda narrative. The

infrastructural projects on Hainan Island are unsettled and speculative, further functioning as a lens to mediate spatial practices, material realities, and digital technology in the form of zones and borders. They also shed light on the spatial-temporal process of geopolitical power in terms of territory, military, global capital for tourism, philosophical thinking, and various cultural representations in public space through exhibitions, literary works, and films. Rather than promoting homogeneity from the mainland to the island (including artificial islands), exploring the island in the context of nation's spatial practice and revealing metaphors allows us to understand Hainan Island in terms of resistance, discursive futures, and the ontology of isolated and connected islands.[63]

[63] Moreover, in a micro-close connection between Guangzhou (Mainland) and Hainan Island, the curatorial project "Paracuratorial on the Move: Islands in the Re-Making" (2022.1.24–1.21) initiated by the Guangzhou Times Museum during the COVID-19 pandemic put the spotlight on Hainan Island (Figure 3.17). The initial fieldwork and observation of the artistic action open up a dialogue of flowing borders at the edge of the land to the island, where the new island frontier in global capitals, logistics, and ocean ecosystems has been articulating Hainan Island's past history and contemporary complexity. The other independent group, Lava Lake, continues these unofficial and private observations in Hainan's mountains and Li ethnic group, focusing on cultural sensitivity and community building. Their writings are named "Island Guerrilla Relay." In this sense, Hainan Island's internal vitality and dynamics are refreshing the mainland's mind and are inclusive of a "Vast World, Great Potential," as seen through the lens of counter-infrastructure fluidity.

CHAPTER 4
Karst Landscapes as Boundary Media in Guizhou: New Infrastructure, Third Front Memories, and Space Exploration

The oceanic boundaries that shape ecological narratives and ideologically-imposed sovereignty, as distinctly embodied in the cases of Chongming Island and Hainan Island, provide compelling illustrations of how island identities undergo both reconstruction and erosion through complex infrastructure processes and future prospects. These dynamics are particularly evident when viewed through the lens of counter-infrastructure developments on these frontier islands, where the interplay between land and sea creates a speculative future landscape, and where ambitious master plans intersect with nuanced local realities and subtle indigenous practices. In my analysis, I extend beyond merely examining island boundaries as infrastructure zones — though this remains a crucial component — to investigate how various forms of boundary media interact with and interpret the distinctive karst landscape formations in Guizhou. This broader perspective enables a deeper exploration of the multifaceted complexities and rich metaphorical dimensions that reveal ongoing tensions between technological advancement and infrastructural realities, while simultaneously engaging with both temporal and spatial imaginaries in what might be termed deep time and deep space. Through this comprehensive examination, we can trace how the ambitious promises and future-oriented speculations surrounding new infrastructure projects in contemporary China serve as powerful narratives that both reflect and reshape the nation's evolving cultural identity.

"New Infrastructure": Big Data Centers in Guizhou

The pervasiveness of digital waves and the digital economy has transformed Guizhou into a habitat for cloud data centers over the past decade. Subsequently, this sociotechnical transformation driven by data technology has not only been calculated through the official narrative for the digital industry in Guizhou province but also reveals alternative narratives and imaginaries in geological memory, aesthetics, and metaphorical counterparts in its karst landform. The digital infrastructure, called "new infrastructure" in a spectrum of digital technologies and machine landscape, in Guizhou demonstrates the encounters and ruptures between geological deep time and digital time, architectural transformation and the natural environment, and collective memory and local imaginaries.

Infrastructure, in essence, is a spatial practice that impacts material existence. Its power is evident in its interaction with tectonic architecture and visual representations, particularly within historical, cultural, and capital contexts. The deep time of Guizhou's unique karst landscape provides the backdrop for this digital futuristic narrative and the exploration of the unknown. It also prompts contemplation about the future within a context of latent violence and crisis. As Carolyn Marvin notes, "Ambitious schemes for communicating with all the earth and even beyond the stars, schemes that aimed to overcome the limitations of distance and wire, were often modeled on familiar machines such as watches, compasses, telephones, and telegraphs" (1990, 194). The concept of a wireless network in the technology for massive communication is primarily supported and operated in data centers. Data centers, rather than just electronic machines, constitute a machine landscape that serves as media infrastructure. These data centers are designed to be ephemeral in duration, serving the informational culture

within geological, historical, and technological time (Jakobsson and Stiernstedt 2012).

Guizhou's karst landform and landscape is both intentionally and coincidentally designed to provide support and stability for data centers used for information storage and server operations, benefiting from its constant coolness and karst caves for machine containers. Thus, the geological time and space of Guizhou for data centers is to "produce narratives of durability and stability" (Jakobsson and Stiernstedt, 2012). Moreover, as Jakobsson and Stiernstedt point out, data centers always overlap with the previous historical "heavy industry," showcasing Guizhou's industrialization history during Mao's China, particularly in the socialist period of the Third Front Line (1964–1980). The Third Front refers to a defensive industrial-military-based development, infrastructure, and campaign to construct secret, massive factories in the southwest interior of China's mountain areas (the first and second lines are coastal and central regions).

In a collapse of human time and the time of nature, technological time creates a discourse related to "time, history, and futurity," which is of shorter duration compared to geological and historical time. When time and history are blurred, space becomes a relevant category for culture and society (Frederic Jameson 1991). The changes in time and space of the social landscape consequently reflect digital and electronic communications in terms of their instantaneous and eternal nature (Massey 2005). Therefore, I consider the big data centers in Guizhou as media infrastructure situated between geological time and ecological space, allowing for an infrastructural investigation into the past and the imaginaries of Guizhou's natural and built environments in the contexts of the digital industry and urban spectacle.

As part of China's digital economic strategy for digital modernity and ecological civilization, "Eastern Data and Western Computing" declares to leverage regional and natural resources, accelerating local economic development and "Digital China." On the other hand, in terms of data security, all the data generated through Apple digital products, which is iCloud data, in China must be stored domestically, mainly located in the big data centers in Guiyang, which serve as part of the global digital repository. Located in Guiyang's Gui'an New Area for the digital industry, Huawei Cloud Town is not mainly dedicated to big data centers, but a training center and examination and certification center for domestic and international participants. The Cloud Town is not open to the public (but occasionally to study groups with application). Featuring a cluster of flamboyant European-style buildings, the center is regarded as "a Fairytale Town" in a Western impression and in the context of globalization for its visual manifestation of architectural landscape and facades (Figure 4.1). However, the physical archive of data documentation is not invisible like the metaphorical "cloud" for digital data, but rather the hyper-visibility exists as a visual expression for the center. For instance, the cube-shaped building in the Cloud Town stores the physical paper documents, which are used as a material backup in case of digital data loss. This eye-catching architecture features windowless-wall facades, resembling a "Mondrian-Box," visually appropriating Dutch painter Piet Mondrian's (1872–1944) signature abstract paintings in primary color composition in red, yellow, blue, and white arranged in simple lines and grids (Figure 4.2). Despite the particular *shanzhai* (copy-building) aesthetic in architectural form, the implication of the abstraction delivers metaphorical meaning

in the fantasy of digital data: “above the cloud” for a technological future. On the other hand, the idea of Mondrian’s abstraction closely resonates with and captures the rhythm and energy of city life, which increasingly relies on technological infrastructure such as digital data support. This further aligns with Bruno Latour’s (1999) concept of “blackboxing” of the invisibility as abstraction for how scientific and technical work is simplified in its internal complexity. In this aspect, the basic colors and patterns become a universal and ubiquitous visual spectacle. The concept of “blackboxing” explains the obscure internal workings simplified by inputs and outputs, and the uneven transparency between operators and users.

Figure 4.1: Huawei’s Cloud Town in Gui’an New Area (*Source* Photo by the author, 2023)
Figure 4.2: The architecture in Huawei’s Cloud Town (*Source* Photo by the author, 2023)

Beyond the built environment of the digital industry, the digital memory is etched and resonates within the ever-changing ecology and deep time of Guizhou’s karst landscape. Hundreds of millions of years ago, the whole region of Guizhou was submerged under the ocean, where the mountains were ocean; then, ancient animals and plants migrated to shallow waters and emerging land. The life cycle of the karst landform begins in its youth, goes through adolescence and maturity, and eventually reaches old age. In the current mature phase, mountains and gullies shape the land, while undercurrents carve rocks in darkness. Eventually, it will erode, leaving only a few remaining mountains and hills on the flat land, with flowing waters on the surface. Considering the present geological era as the Anthropocene, where human activities dominate, alter, and impact planet Earth, the glitches of the Anthropocene are triggered and manifested in digital memory and data capital. In *Random Access*, a video work of 14 minutes and 24 seconds created by Guizhou-native artist He Zike in 2023, it unfolds a speculative journey of a retired female taxi driver and her passenger on the second day after the collapse and reset of the central data center in Guizhou (Figure 4.3). Composed as a fictional narration, the collapse between geological memory and digital data emerges in a voice-over in the Guizhou dialect:

> “I haven’t forgotten either, when I was still a shell. Sea water receded from this land, then the mountains rose. The rain fell down, pouring into the bodies of the ground and the mountains. Until one day, they can not be held any longer, forming the river, the caves, and the sinkholes, bursting and gushing out like memories.” (6’49’’-7’24’’)

Rivers, caves, and sinkholes are the primary and symbolic entities of karst landforms in Guizhou, which are geological memories of deep time. In this context, the deep time of geological space recalls and retraces the disorderly and fragmented digital memory operated by big data centers and computing models. On the other hand,

random glitches represent temporary existences and impulses against the technical retention (tertiary retention) in the notion of Bernard Stiegler (1998). The accumulation of technical retention has been generating a digital legacy and traces that anticipate, calculate, and accelerate towards a future end. Conversely, random access, as part of the technical retention, reveals random memories from the world of digital clouds. Guizhou's digital traces in geological memories are preserved in the layers of folded rocks, caves, sinkholes, and the long geological evolution that transcends human time.

Figure 4.3: *Random Access*, 2023, video, 7'54'' https://www.youtube.com/watch?v=Zo5H73ng7y0&t=491s (*Source* Screen shot from *Random Access* [2023], He Zike)

Another Emerging Story of Data Centers in Northern China: Ulanqab's Silent Digital Infrastructure

Economic innovation and growth are closely linked to large-scale environmental engineering infrastructure projects. The big data centers in Guizhou and Ulanqab (referred to as "Guizhou in the South and Ulanqab in the North") illustrate a center-periphery relationship in the national development approach. Ulanqab, located in Inner Mongolia near Beijing, is considered the "backyard" of the capital city and has recently emerged as a data center hub, known as the "grassland cloud valley," in Northern China. Both regions prioritize an eco-friendly perspective by utilizing local green and clean energy sources, such as coolness, affordable land use, and a mild climate (Figure 4.4), which demonstrates a "digital ecological civilization" to "promote the deep integration of digitization and greenification."[64] The ecology of cloud data centers in Guizhou and Ulanqab presents a digital solution for local finance, economic development, and global exchange.

Ulanqab's big data centers, including Huawei, Alibaba, Kuaishou, and Apple, are currently under construction and partially in use. Unlike Guizhou's geological condition, which is characterized by mountains and karst caves, Ulanqab boasts vast grasslands and lower land use costs. Additionally, its proximity to Beijing allows for relatively convenient transportation infrastructure of highways, with a travel time of approximately 3.5 hours by car. These data centers and complexes are being constructed in the Jining district of Ulanqab, surrounded by open air. The ongoing development of these big data center infrastructures highlights Ulanqab's role in the

[64] See *People's Daily Newspaper*, December 1, 2023

national strategy for the digital economy, leveraging wind and solar power as well as cheap land use. The new streets constructed in the area of big data center bases are named after companies, such as Alibaba Boulevard, written in both Chinese and Mongolian (Figure 4.5). While it may not possess the fanciful imagery associated with the metaphorical "cloud," it is still a mediating zone between suburban and rural areas, where the streets are populated with sheep grazing on tree leaves in the green belts, accompanied by sheepdogs resting and watching nearby (Figure 4.6). This blend of rural characteristics and non-human elements coexists with the big data centers, shaping the infrastructural space of Ulanqab's data capitals in the context of digital gentrification and transformation.

In this sense, Ulanqab's data centers represent a "machine landscape of the post-Anthropocene" and a "human exclusion zone" (Young 2019, 10). These data centers differ from Foxconn Factory's reliance on heavy labor, as they demonstrate a machine-centric approach to organization and maintenance, only demanding minimal workers responsible for daily management. In the infrastructural landscape of Ulanqab's big data centers, its machine zone is equipped with warehouses and surveillance cameras to deter intruders. Either in Guizhou or Ulanqab, these data centers form a homogeneous physical infrastructure for cloud services, shaping the local landscape where the Internet facilitates the circulation, uploading, and exchanging of images, messages, and files. In other words, these big data centers manifest architectural infrastructure for the machine landscape while also representing an uncertain and ambiguous machine territory where expansion occurs for its physical inhabitants.

Figure 4.4: Huawei's big data center in Ulanqab (*Source* Photo by the author, 2023)
Figure 4.5: Alibaba Boulevard Road in Jining District, Ulanqab (*Source* Photo by the author, 2023)
Figure 4.6: Animals on the streets around Ulanqab's big data centers (*Source* Photos by the author, 2023)

The capitalist and economic transformation in Inner Mongolia highlights the dominance of absolute space in understanding urban processes, as described by

David Harvey in his concept of the "Grid" of Spatial Practice. The physical infrastructure, as a material spatial practice, is connected to spaces of representation for controlling and generating unfamiliar or rumored spaces (Harvey 1991). Ordos, for example, a city in Inner Mongolia, was widely referred to as a "ghost city" by Western media in the 2000s, similar to the labeling of Zhengdong New Area in Zhengzhou, Henan province, as a "ghost district." Both Ordos and Zhengdong New District feature large-scale urban infrastructure designed by international architecture firms, but they lack a significant population and have an inactive urban culture, resulting in empty and stagnant situations. On the other hand, Ulanqab and Zhengzhou are still affected by geographical discrimination, leading to historical uneven geographic development, poverty, and reported theft cases on social media.

While new urban and digital infrastructure, such as big data centers, are changing some stereotypical impressions of the cities' imagery, they also bring speculative futures. For instance, the controversial issue of *lanwei* buildings due to local government debt and real estate policies. The digital industry, represented by big data centers, plays a significant role in shaping China's technology infrastructure and the visual propaganda displayed on billboards and rural buildings around Ulanqab, promoting the city's upcoming new and modern imagery, narrated in the digital industry and ecological civilization (Figure 4.7). Both Guizhou and Ulanqab share a spatial role in the "appropriation and use of space" to achieve the prospect of the digital industry through data centers, both as national and governmental imaginaries. As data centers shape and circulate the infrastructure future for Guizhou and Ulanqab, they become part of Asia-led globalization in the digital industry and economy.

Figure 4.7: Propaganda billboard on Ulanqab's highway to promote digital industry and ecological civilization (*Source* Photos by the author, 2023)

Cloud, Bunker, and Hollow Mountain: Thinking Guizhou's Media Infrastructure in the Socialist "Third Front Line"

Clouds and mountains are media elements and an integral part of media ecology. Cloud data centers, the predominant form of storage, are located and secured in mountains, particularly in hollow mountains. The cloud, a metaphorical

representation of data, serves as a surface and interface for digital fantasy. Mountains and stones, on the other hand, are deliberate and intimate spatial concretes, reflecting their historical complexity and articulation. In the context of media ecology, "media are of nature, and return to nature" (Parikka 2011). The question at hand pertains to the timescales for the disclosure of materials in real-time and their management with human intervention. From controlling indoor and outdoor climates to exploring the universe, media infrastructure has been comprehensively and critically examined as environmental, cultural, and aesthetic registers within and beyond media studies. Scholarly work on Nigerian cinema and urban culture (Larkin 2008), undersea cables for global networks (Starosielski 2015), and the prehistory of imaginaries regarding cloud and data centers (Hu 2015) explores the media infrastructure embedded in cultural fantasies and geophysical power relations. In this line of inquiry, media is understood as constituting infrastructure and materials that we are and use (Peters 2015), including climatic media for creating artificial climates in technology and engineering experiments (Furuhata 2022). Thus, the preconditions and predictions of media infrastructure encompass a multitude of representations in artificial events and moments as ecological and spatial productions.

Cloud computing has a prehistory rooted in the historical obsessions with data storage and visualization. Cyberneticians in the past reformulated 19th-century ideas associated with the archive, documentation-data storage, knowledge-time, and perception-process (Halpern 2014). The digital cloud, in a more radical sense, is a militarized legacy that has evolved from earlier networks in terms of both politics and technologies. The iconic cloud shape representing the digital network is an abstract concept that is timeless, placeless, wireless, and immediate. However, behind this abstraction, remote massive data centers, also known as data bunkers, serve as the physical spaces where history is shaped by space and power dynamics (Hu 2015). These bunkers function as archival spaces that preserve the present for the future, guarding against unforeseen natural or man-made disasters. Examples include the Barbarastollen underground archive in Germany and the Svalbard Global Seed Vault in Norway. The politics of sovereignty, norms, and schemes operate and remain concealed in locations such as the ocean, mountains, and underground, where geological history is being formed.

Among these elemental media (Durham 2015), clouds and mountains draw connections of material substrate for war violence and militarized advancements. The first nuclear mushroom cloud of China in 1964 at Lop Nor originated from the mountains in Guizhou province (which provided primary materials for China's earlier socialist nuclear industry from the 761 mine). During the 1950s, the geological prospecting of mines, coal, and uranium played a significant role in the heavy industrial history of Mao's China, particularly in terms of technologies and national defense. Meanwhile, "the geopolitical and environmental impact of this mammoth developmental project to build industrial infrastructure throughout Eurasia now presents one of the great questions of the post-Cold War era" (Meyskens 2020, 236). Thus, in the post-Cold War context, the ecosystem of the Third Front represents both a "deep time" and a "deep space" as military infrastructure from Maoist China.

The cloud in Guizhou's karst landscape represents not only the presence of large data centers but also the connection to nuclear experiments, where mushroom clouds emerge from the geological extraction and mining activities in Guizhou. This geological memory echoes the concealment of the Third Front factories in Guizhou, which were part of socialist industrialization, technological innovation, and the current spatial practice of building data centers within hollowed-out mountains. As a result, the principles and campaign phrase of the Third Front—"mountainous, dispersed, and hidden"—are geographical ideology, cultural legacies, and a dialectical logic to understand Guizhou's digital infrastructure and collective memory.

Prior to the Third Front Construction era, Guizhou's karst cave was established as a crucial military facility during World War II. Following Sun Yat-sen's call for "saving the nation through aviation" in 1913, the karst Crow Cave in Guizhou, led by elite engineers with overseas educational backgrounds and advanced degrees (such as from MIT and the University of Michigan), was transformed into an aviation industrial facility by the KMT in 1941. This facility became the first manufacturing factory for aviation engines. Despite being located in an area known for extreme poverty, it was also considered a "Peach Blossom Spring Place" (Tan 1972). The Crow Cave aviation factory established a community centered around its infrastructure, catering to workers, the army, families, and students during wartime. The karst landscape provided shelter, protecting against Japanese bombings. The factory, formerly known as the Dading factory, was located in Kunming but was destroyed during the Japanese occupation of French Indochina. The Crow Cave served not only as a military factory but also as a center for aviation professional training and education in aerotechnics. To outsiders, the secret facility was known as the Wind Fly commercial company. However, the wartime period highlighted the importance of the Crow Cave as a large-scale natural bunker, as well as the cave's subsequent decay and relocation in history and memory. In February 1949, the Dading Factory was moved to Qingshui, Taiwan, leaving behind the Qingshui military dependents' village as a reminder of the factory's original location and history in Guizhou's Dading County. The machinery and materials left from the Dading factory were utilized in the aviation manufacturing industry of the People's Republic of China.

Stone inscription is a durable and concrete medium for conveying geological narratives. Li Boling, the factory manager, engraved a sentence from Confucius' classic *Great Learning* — "Things have their root and their branches. Affairs have their end and their beginning. To know what is first and what is last will lead near to what is taught in the Great Learning" (Li 2014). The saying contains the material essence of all things, from tangible appearances to their ultimate form. It not only reflects the determination and efforts to achieve aviation manufacturing in the face of difficulties in warfare and the natural environment but also symbolizes the hope and uncertainty of the future. The geological narrative of karst caves and stones serves as a philosophical complement, representing layers of geological memory overlaid by Mao's Third Front Construction, which constructs the socialist modern military industry.

In an updated geo-ideological context, stones are given the power to visually express an ideology. In 2002, a stone carving resembling Chinese characters that read

“Chinese Communist Party” was regarded as an archaeological discovery on a cliff in Pingtang County, Guizhou. This revelation acknowledges the significance of the stone’s materiality and agency, as it performs a desire for political legitimacy (Figure 4.8). A replica of the cliff and a certificate are now exhibited in the Geological Museum of Guizhou. This display not only serves to legitimize the stone beyond human time but also imposes a geological ideology on the memory of stones. This ideologically imposed narration on rocks illustrates Guizhou in the political landscape and speculation. Instead of the wordlessness of stone, it becomes a political medium for political spectacle and legitimacy.

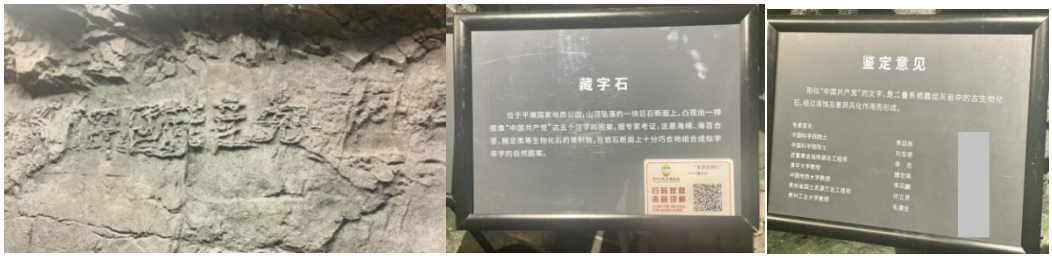

Figure 4.8: The replica installation of the carved stone with “The Chinese Communist Party” inscription, along with its description and the testimonial summary provided by specialists, displayed in the Geological Museum of Guizhou (*Source* Photos by the author, 2023)

Meanwhile, the vast infrastructure of the frontier consistently conceals and reveals various forms of violence, both slow and fast. For example, the enduring violence related to disputed land in the border politics between Israel and Palestine can be observed through frontier architecture, which consists of massive infrastructural systems. In this case, Forensic Architecture investigates and interrogates this type of politics and surveillance by analyzing built environments (such as buildings, landscapes, cities, and details) and the representations found in data and media (Weizman 2017). Hollow land, including the hollowed-out tunnel that represents the vertical infrastructure of Gaza’s underground, “demonstrates how both obvious instruments of control and seemingly ordinary structures carry profound historical and political significance” (Weizman 2007).

Against the backdrop of the Cold War, the Third Front Line of Guizhou (1964–1978) can be understood as a spatial manifestation of both external speculative violence and internal response. This led to the militarized industrialization and modernization of the region. The construction of military infrastructure in the mountainous areas was aimed at defending against potential war violence and securing long-term sovereignty. However, the Third Front Construction also had an abstract dimension in the meta-narrative of ideological awareness and propaganda. It was utilized to mobilize the masses and resources. The mountainous terrain provided a natural formation that served as a sanctuary for factories and military facilities, enabling them to avoid detection from advanced surveillance systems like satellites or drones. The cave-bunkers, concrete remnants of the Cold War, have now become sites for dark tourism, showcasing the abandoned factory sites in the mountains and caves. On the other hand, the long-lasting impacts of the Third Front Movement and Construction are evident in inter-generational slow violence, particularly as depicted in the 2005 film *Shanghai Dreams* (*Qinghong*), the first episode of the “Third Front Trilogy” directed by Wang Xiaoshuai. The film portrays the struggles faced by a Shanghai family in the 1980s who experienced the Third Front Construction in Guizhou. These physical and mental conflicts include infrastructural relocation

between urban and rural areas, historical dilemmas, and a mix of collective and individual emotions such as trauma, anxiety, anticipation, and hope. The decaying memories of Mao's Third Front, characterized by its remaining industrial-factory-community infrastructure, evoke lingering remnants of historical divisions. The socialist background of the Third Front is explicitly told in the opening of *Shanghai Dreams* as an acknowledgment of the individual families as migrant labor from big cities in Northern China and Shanghai, as well as the relocation of factories:

> In the 1960s, in response to the government's call, countless families left their hometowns with their factories and came to the barren mountainous areas of the west to start third-line construction. Most of them come from big cities such as Shanghai, Beijing, Shenyang, and Harbin. They opened up wasteland and built factories, starting their new life. To this day, most people still stay there, and it has become their new hometown (0'00''- 0'25'').

The "wasteland and built factories" that these socialist developers opened up and constructed returned to the abandoned infrastructural landscape of the Third Front, where the rupture between the socialist memory of the collective and individuals and the geological memory of Guizhou remains alive. Or it was "Shanghai Dream," but what if there was a "Guizhou Dream" to recall the Third Front's past? The second episode (2011) in the series, *Eleven Flowers* (*Wo shi yi*), similar in its recall of coming-of-age to *Shanghai Dreams*, captures the protagonist's 11-year-old boy's witness of adult violence during the Cultural Revolution against Guizhou's Third Front. Over the course of and in the transition from the Cold War to post-Cold War, the history and collective memory of the Third Front Construction as large-scale military infrastructure in Guizhou's karst landforms (mountains and caves) represent a masculine collective narrative of war violence and socialist industrial construction. Yet, the feminine quality of the negative infrastructure of the Third Front Line conceals the inland memories and sentiments of individuals, as depicted in the last episode in 2014, *Red Amnesia* (*Chuangru zhe*) — a female elder recalls her traumatic nervousness and self-search of the Third Front collective experience from "ordinary individuals for instigating and sustaining historical violence" (Wang 2017). From an alternative perspective, the "Third Front Trilogy"'s reception among English-speaking reviewers and audiences points out that the Cultural Revolution eclipses the Third Front (Kendall 2022).

As the cultural representation of the industrial legacy of The Third Front characterizing the city's identity in Guizhou, Liupanshui is narrated as a city known for its coal mining industry developed since the Third Front period. The Guizhou Third Line Construction Museum in Liupanshui, which is the first Third Front Museum, not only preserves the material memory of Red Tourism but also showcases various visual displays and cultural activities, such as stage performances, that are part of the city's identity and the legacy of the Third Front. On the other hand, Liupanshui is also described as "industrial heritage" (Lam 2020, 265) as a "means to produce consumer-subjects and patriotic citizens," with China's Third Front ruins embedded in a global history. This means understanding Liupanshui through ongoing cultural narratives with ideological and capital dimensions. Subsequently, The Third Front presents a nonlinear metanarrative that includes events and moments from the past, present, and future. It explores potential future scenarios, including the unsettling possibility of a nuclear war. Externally, it reflects the historical trajectory of a nation and the collective memories of a generation in

Maoist China. Internally, it intertwines with the micro-history of geological narrative and the shaping of the media and cultural landscape. In the updated infrastructural version of Liupanshui planned by the Asian Infrastructure Investment Bank, the upcoming urban transformation demonstration project proposes: "To improve urban mobility and build resilience in Liupanshui City through the upgrading of urban infrastructure in the transport and water sectors with a focus on the improvement in smart, green, and resilient features."[65] In relation to the Third Front identity for Liupanshui and many other cities in Guizhou, urban infrastructure means a hegemonic urban planning and capital investment in a spectrum of technology and globalization, while the Third Front as socialist infrastructural memory evokes and is embedded in discursive space and deep time of mountains and waters, inextricable imaginaries between past and future.

Digital Labors in Digital Ghost Town: Urban Life and Fantasy of Guizhou's Urban Infrastructure

The digital infrastructure for Guizhou's digital industry is specialized in new areas, especially in the name of digital towns. Besides Huawei Cloud Town, another government-led digital town called Bainiaohe Digital Town (Bird River Digital Town, a science and technology park) was initiated and built in 2017 to promote Guizhou's digital economy (Figure 4.9). Bainiaohe features similar European-style architecture, and its companies primarily focus on labor-intensive digital labeling work for data training and categorization. However, beneath the allure of digital technology, the accumulation of raw data and AI learning still heavily relies on repetitive manual labor. In everyday website browsing activities, users often encounter reCAPTCHA (Completely Automated Public Turing Test to Tell Computers and Humans Apart) to verify their identities. While machine-based warehouses store massive amounts of data in the cloud, the actual labor-intensive and time-consuming tasks are performed in remote offices in major cities or by inexpensive digital labor companies. In other words, the core of AI computing relies on data labeling—a task that involves simply using a mouse to mark, color, or highlight differences/similarities, and categorize data to provide training materials for machine learning.

Figure 4.9: Bainiaohe digital town (Bird River digital town) (*Source* Photos by the author, 2023)

[65] *China: Guizhou Liupanshui Smart Urban Transformation Demonstration Project*. Concept reviewed on April 2, 2024. Accessed December 12, 2023. https://www.aiib.org/en/projects/details/2024/proposed/China-Guizhou-Liupanshui-Smart-Urban-Transformation-Demonstration-Project.html

One of the remaining and active tech companies in Bainianhe Digital Town is Mengdong Technology Company. They specialize in the digital labeling sector, which plays a fundamental role in supporting AI machine learning. The growth of technology infrastructure relies heavily on manual operations and labor-intensive jobs. Notably, the digital town has a close connection with Guizhou Forerunner College, which was established in 2011 through donations from Taiwanese entrepreneurs Wang Xuehong (b. 1958) and Chen Wenqi (b. 1955). The job opportunities and daily tasks at Mengdong Technology Company for students from Guizhou Forerunner College are tedious and repetitive:

> Deng Xuechun, a 20-year-old student at Guizhou Forerunner College, has just started her shift at the Guizhou Mengdong Technology Co. Ltd. factory. Her job is to identify the vehicles in still frames from street camera footage, as well as any objects that may be obstructing the view. She is required to sit upright at all times and avoid speaking with her schoolmates sitting next to her. (Chen 2018)

This higher vocational college has been designated as a charity school dedicated to poverty alleviation in accordance with the Chinese government's development strategy, particularly in rural areas, since 2015. In terms of digital infrastructure, Guizhou combines low-cost natural energy with labor for low-tech technology work. This aligns with the essence of Bainianhe Digital Town, which promotes the local government's initiative for the digital economy in line with the nation's infrastructure promises for the digital economy. The digital labeling in Bainianhe Digital Town operates as an outsourcing business model. However, it does not necessarily provide equal rights and guarantee policies for employees. Instead, it involves straightforward and repetitive labor and the transfer of non-core business or risks to outsourcing companies. During my visit to Bainianhe Digital Town, I observed that the space resembled a tourist site, with shanzhai architecture, and a campus for students from Guizhou Forerunner College. On the other side of the street, there were several dormitory buildings where students resided, making up the majority of the population in the area. However, during my field trip to the digital town, I noticed that while some data companies remained open, most of the buildings were empty or in a state of abandonment. A billboard in the digital town and Huishui County provided an introduction to the area:

> The town is a strategic opportunity for the development of big data industry by adhering to the two bottom lines of development and ecology, the Internet plus big data application is new industrial park to achieve transformation and upgrading and leap over the planning and construction.
>
> Bainiaohe digital town has planning area of 19 square kilometers and a core area of 5 square kilometers. It takes "village" and "Park" as the industrial distribution, implements the overall layout of "one town, seven villages and multiple parks," and creates an integrated industrial system of ecology, life and production. The town has been recognized as a "state-level high-tech industrial park." As a provincial, prefecture and county level co-construction Park, it has been built with improved quality, and has successively won the title of "national enterprise information construction demonstration base" and "Guizhou digital economy demonstration."

Additionally, another introduction panel for the county People's Court Big Data Trial Division reads:

> In 2016, Huishui county People's Court Big Data Trial Division was founded formally in Bird River Digital Town, which made up for the blankness in professional judgment for big data conflicts, breaking spatial limits in traditional trials, and providing judicial service and guarantee for big data industry.

The digital town emphasizes the concepts of "development," "innovation," and "ecology." The official strategy and goals of the town rely heavily on digital technology, particularly in the big data industry, as a source of motivation and brand identity. However, the implementation of the town, led by the local government, demonstrates a shift away from a "bottom-up" urbanization process (Oakes 2023). Bainianhe digital town, situated within Guizhou's new area of digital economy and big data industry, embodies the infrastructure analytic approach outlined in China's pattern of urbanization, specifically the "network-territory approach." This approach is characterized by a state-imposed scale of territorial administration and the transformation of infrastructural networks to enhance connectivity. Consequently, Guizhou's new areas, as spaces defined by their infrastructure, disrupt and alter established patterns of life, resulting in a suspended experience of life (Oakes 2023). This life experience in the digital industry is observed through digital labor in these data factories (companies) in Guizhou as another version of the Foxconn Factory in Zhengzhou: the digital consumption of labor in China's "world factory" for the speculative future of factory infrastructure.

To further explore Guizhou's emerging digital-industry-oriented infrastructure space in a local context, I suggest looking at the urban life and spatial variations in cultural dynamics in Guiyang, the provincial capital of Guizhou province. While examining the digital infrastructure in Guizhou's urban areas, we observe everyday urban aesthetics with their peculiar qualities in a sense of hyperreality. One notable case is Dushan County in Southern Guizhou, which is classified as a poverty-stricken county but has accumulated a staggering ten billion yuan financial debt. The visually striking large-scale architecture, a Shui-style wooden building in the Jingxingu Valley Tourism Zone dedicated to Guizhou's Shui ethnic group (Figure 4.10), is known as a *lanwei* building (unfinished architecture halted in June 2018) and has become emblematic of local corruption issues with a cost of 325 million yuan. As a remedy, infrastructure development, in the form of architecture, has become a strategy employed by local governments. The hyperreality of the Shui-style wooden building also demonstrates the lack of transportation infrastructure in Dushan County, 182 km away from Guiyang, affecting connectivity and accessibility across forested mountains.

Figure 4.10: Shui-syle wooden building in Dushan County, Guizhou (*Source* Public Domain)

In the urban center of Guizhou, Huaguoyuan Residential Complex (Flower Fruit Community) compiles and condenses urban life and public space in a sense of hyperreality through spatial configuration and digital media. Compared to the digital infrastructure planning of new areas for data centers or digital towns, Guiyang's urban spectacles and fantasy displays reveal the spatial relationship between inclusivity and exclusivity, domination and desire. Huaguoyuan Residential Complex, located in the Nanming district of Guiyang, covers an area of 1,839 km² and is home to 300 high-rise buildings and a population of half a million. It is one of the largest residential areas in Guiyang, along with other similar commercial residential real estates like Tiantongyuan in Beijing with 6 million km². In a practical condition of less management but cheaper rental costs, the super-large and highly dense real estate space resembles a small city, complete with all the necessary facilities.

The most eye-catching and mysterious architectural structure in Huaguoyuan is called the "Guiyang White House," officially known as the "Flower Fruit Orchard Art Center," located in front of the Huaguoyuan Wetland Park (Figure 4.10). Clandestinely, little information about the ownership and interior of this architecture is accessible to the public, leading to numerous rumors. Similar to the European-style shanzhai architecture of Huawei Digital Cloud Town and Bainianhe Digital Town, the aesthetics of global architectural spectacles reinforce how capital replicates visually striking buildings for the public in China. Strangely, square dance, a mass daily hyperreal activity, occupies the open-air public space in front of the "White House" square after dusk. The nickname "White House" of this secret building in the center of Huaguoyuan explicitly places the Western and global architectural imaginary in local spatial narrative.

On the other hand, the copied buildings and their aesthetics in Guizhou parallel and coexist with local urban life visually and spontaneously. When night falls, in front of the "White House," various age groups participate in disco-rhythmic dancing, and songs on Douyin (TikTok in China) go viral, making it a collective activity as well as an individual performance in the public square of nightlife at Huaguoyuan (Figure 4.11). The lighting illuminates the "White House" as a silent background for the dancing square and loud music. Huaguoyuan has transformed from an urban village (shantytown) to provide more living space for the increasing population. The coexistence of the luxurious and mysterious Guiyang White House as an urban legend and the cheap, high-density high-rise buildings showcases how architecture, as a form of infrastructure, encompasses both masquerade emptiness and everyday

lived experiences in open spaces as spaces of representation. In Guizhou, urbanization and gentrification not only demonstrate the existence of the Huaguoyuan community but also highlight how urban infrastructure adapts to everyday intimacy and closeness, embodying Chinese characteristics that go beyond "kitsch" and instead represent the reality of highly compact urban living spaces in the shadow of urban infrastructure.

Figure 4.11.1: High-rise buildings in Huaguoyuan residential complex (left) and "White House" (right) (*Source* Photos by the author, 2023)

Figure 4.11.2: The twin towers/Huaguoyuan International Trade Center (*Source* Photos by the author, 2023) and square dancing view in front of Huaguoyuan Wetland Park (*Source* Public Domain)

The densely populated and spontaneous nature of Huaguoyuan may remind one of the Kowloon Walled City in Hong Kong (1989–1994), which was a legendary village-city/slum within a capitalist metropolis. However, while the Kowloon Walled City was a self-built architectural enclave in Hong Kong's urban history, Huaguoyuan has become a city landmark circulated through social media. In Tim Oakes's argument, the everydayness or everyday life is transformed and goes through "infrastructure grids," blurring the boundaries between urban and rural. In other words, infrastructure intensifies the ambiguous, poetic, and peripheral narrative of Guizhou. In recent years, after Wang Xiaoshuai's film series of Guizhou in the Third Front memory, the films produced by Guizhou are proliferating and being seen as part of the unofficial "Yunnan-Guizhou-Sichuan New Wave." Among the young generation of Yunnan-Guizhou-Sichuan native directors, Guizhou native director Bi Gan's 2015 film Kaili Blues illuminates the memories entangled with illusions and dreams in individuals' everyday lives. Traveling in Guizhou's karst

landscape, Kaili Blues features a series of long shots of green-skinned trains and village roads across caves and mountains, ferries and boats crossing rivers, symbolizing the protagonist's dream journey as he crosses mountains and tunnels. Behind the digital and urban infrastructure of Guizhou, the stories in the mountains also tell the intricate personal memories of Kaili (Bi Gan's hometown, a county in southeastern Guizhou, mainly inhabited by Miao people and Bi Gan is from the Miao minority)'s decayed village landscape, close-ups of Miao brocade and batik fabric, and the intimate subtropical monsoon's warm and humid climate in Bi Gan's cinematic language:

> Throughout the film, his camera registers this surreality so much more vividly than merely recording the existing light-reflecting world. The intense blues and greens, the saturated, tangibly thick light and shade of the settings, the impossible visions of twirling, ever-present disco mirror balls, of trains and waterfalls that seem to rush through Chen's home, defying space, are onjured into light and sound, and, via poetry, into cinema (Kraicer 2015).

For Guizhou, infrastructure development and infrastructural future live in an unsettled and wobbling geological space that intrudes upon the infrastructural background, resonant with Guizhou's socialist and geological memories of being "mountainous, dispersed, and hidden." At large, the Third Front represents the memories of the Cultural Revolution and the paths to a modern state: "capitalist modernity (adopting marketization for economic development), socialist modernity (in socio-political and ideological governance), and Chinese Confucianism (restating commitment to ethics and morality)" (Meng 2020, 142). In this context, however, the modernity for Guizhou claims its peculiar cultural and geological identity and intensively becomes the central location for digital infrastructure. The desire for digital infrastructure in an ideologically imposed "ecological civilization" in Guizhou primarily manifests the elemental media as well as the cool capital of its regional climate and temperature. The data centers, in their quest and direction for the future, act as repositories of moments and guardians of remnants. They can be seen as a metaphorical spaceship or ark, offering a utopian alternative to the tragic narrative of history and modernity described by Walter Benjamin in his famous ninth thesis on history (Jakobsson and Stiernstedt 2012, 112–113). While the process of digitalization and informationalization diligently collects and stores various forms of media, it also leads to the gradual erasure of history amidst the relentless march of progress of modernity. As we strive to create a historical record through the accumulation of data in media infrastructure, we are forced to confront the haunting presence of historical ruins — the bunker-like spaces and hollowed mountains of data centers. In the deep time of Guizhou's karst formation and landscape, the socialist memory and legacy of the Third Front unfolds an "unstable history":

> Thinking like a mountain extends the ambit of critical inquiry by yoking two figures neither settled nor fully known: a geologic formation that does not remain still and a creature of unstable history, easily undone. (Cohen 2015, 3)

On the other side, digital media demonstrates a particular dimension that is either too intimate with the digital device (screens) or too far removed from the abstraction of the cloud in data centers. It is indeed a spatial problem that can be observed visually and spontaneously in Guiyang's dynamic urban life. Under the top-down spatial occupation of "new infrastructure," the urban space of everyday life is

transmitting and fermenting digital data. Meanwhile, Guizhou's new infrastructure emerges in the mega-space infrastructure, both as concrete and abstract narratives embedded in karst caves and looking toward the cosmos, which evokes imaginaries temporally (deep time) and spatially (deep space).

The Spherology of the Earth: Five-hundred-meter Aperture Spherical Telescope

Observing signals and unknowns from outer space reveals the fact that, at least within human capacity, there is only one Earth at this moment. Throughout history, photographs of the planet Earth have depicted it as a "blue marble" or a "shrinking island in space." This environmental or ecological perception portrays Earth as a nurturing and protective entity, often referred to as Gaia (a self-running complex living organism that makes life forms possible on Earth). In contrast, humans have cultivated, conquered, and transformed the Earth through religious, technological, and societal events, contributing to the development of human civilization. The Anthropocene era presents a contradiction, as the meaning created by humans (Homo sapiens) is dependent on Earth, even though the planet itself possesses its own complex systems, as considered in the notion of Gaia. In one of the most recent crises for humanity, nuclear power and atomic bombs serve as physical and mental manifestations of deconstruction and annihilation. If the ultimate destructive power addresses the temporality of humanity, the spatial matter imagines an openness and process for possibilities.

To capture the origin, existence, and formation of the universe, metaphors of "membrane," "thin film," and "bubble" are conceptualized and conceived. Physicist Stephen Hawking suggested that outside the universe there might be a "membrane," and the "metaverse" is like a pot of thick soup where bubbles constantly form and disappear, with each bubble representing a universe. When a bubble expands, the universe undergoes inflation; when a bubble bursts, the universe contracts and dissipates. Some bubbles expand to a certain scale and avoid collapsing, thus continuing to exist, like our universe (Mandelbaum 2018). Apart from physical hypotheses, in Tibetan genesis legend, the "egg" is the physical "bubble" and a "thin film" forms the "egg":

> "At the beginning of creation, the entire universe was void. All living beings gradually formed in the void, light and rays appeared among the living beings, with light being the father and rays being the mother. Dimness and darkness appeared within the light and rays, followed by a breeze-like breath, within which white frost appeared, and dew appeared within the frost. The combination of ice and dew resulted in a pond, upon which a thin film formed and rolled into an egg. From the egg hatched two eagles, one black and one white, which mated and produced three eggs: white, black, and variegated (multiple colors). The white egg broke open to form the heavenly gods, who became the continent where humans reside. The black egg broke open to reveal humans, and the variegated egg broke open to reveal living beings."

What is more, in a philosophical framework according to Peter Storledjik, the planet Earth is an formation of a bubbles-globes-foams, representing the fabric of life. In this vein, infrastructural networks give rise to micro-spheres for individuals through communications and mobility, interior and outdoor environments (which exists in an

injustice and uneven structure in terms of globalization). The infrastructural network, for instance, encompasses crucial domains ranging from underseas (fiber-optic cables, submarines), to the ground (plants, vehicles), the sky (airplanes), and even orbit (satellites). On a larger scale, expansive telescope infrastructures enable us to comprehend the collective existence on Earth as a whole and receive communications that extend beyond the planet's surface.

Both Latour and Sloterdijk focus on the materiality and spatiality of the sociotechnical configurations in which technopolitics takes place. Their philosophies create awareness of the specific meanings of technopolitics and the various ways in which humans, institutions, and technologies are connected and confront each other. The aim of this section is to develop a morphological understanding of border infrastructures. This means transcending the boundary between politics and technology—and between ideas and things—by exploring how political ideas travel via things and technologies, as well as how devices, databases, and instruments are containers of political ideas and vehicles for political action. Based on the ontology, spherology, and political theology of Latour and Sloterdijk, the discussion here develops the concept of peramorphic politics—a morphological technopolitical account of how borders and politics give and receive shape.

Specifically, I examine FAST (Five-hundred-meter Aperture Spherical Telescope) in Guizhou as an ecological and metaphysical spatial formation, shedding light on space infrastructure and science fiction imaginings within the Chinese context. The last section of this chapter shifts the time (digital to cosmic) and scale (mountains to planet) from the digital infrastructure of big data centers to space infrastructure in Guizhou, from stones and mountains to the sky and universe, from the Third Front to the imaginaries and speculation in the Anthropocene context.

FAST, also known as Sky Eye (*Tianyan* in Chinese), is a spectacular manifestation of human existence on planet Earth (Figure 4.12 and 4.13). Situated in Guizhou's karst landscape, this colossal radio telescope resembles a giant pot nestled among tall green mountains. Its primary function is to collect and store vast amounts of real-time data for listening and searching for signals of extraterrestrial life. However, the cost of maintaining such infrastructure highlights its fragility relative to its scale. For example, the Arecibo Observatory, which was built and operated in 1963 and was once the world's largest single-aperture radio telescope at three hundred and five meters, collapsed and permanently shut down in December 2020. It was located in Puerto Rico and was instrumental in the discovery of extrasolar planets. The collapse of the Arecibo Observatory not only exposes the politics involving mainland U.S. and Puerto Rico but also signifies the end of Puerto Rico's advanced astronomy history and its future practical significance. Therefore, the maintenance and repair of these structures obscure the physical and mental aspects of their occupation, operation, and existence. As Graham and Thrift (2007) state:

> ..."maintenance is learning" (Brand 1994, 127). And, if this is the case, then the multifarious activities of repair and maintenance become not just secondary and derivative but pivotal. They become one of our chief means of seeing and understanding the world.

Figure 4.12: Michael Najjar, *f.a.s.t*, 2017, photography (Source Courtesy of the artist)
Figure 4.13: The site visits of FAST (Resource Courtesy of "Under the Cloud" Project 云下贵州项目 and Zhao Xiaoxiao)

On the other hand, FAST may receive and interpret delayed future replies from outer space that were originally sent by the Arecibo Observatory in the past. The timescale of a radio telescope compresses multiple timescales of humans, astronomical infrastructure, and the planet Earth. Due to its shape, FAST is also referred to as a "big pot" in Chinese. The sinkhole serves as a natural bracket supporting the telescope, while the undercurrent below acts as a natural drainage system during the rainy season. This sinkhole bears a resemblance to meteor craters like the Barringer Crater in Arizona, U.S. In these cases, the meteor crater acts as a conduit for cosmic forces and media carrying outer space information that impacts the Earth, resulting in the geological formation of a sinkhole. Despite being a geological formation that combines artificial and natural forces, such as a sinking hole on the Earth's surface, both the radio telescope infrastructure and impact crater contribute to decay, as well as the potential for hope, improvisation, innovation, curiosity, and catastrophes. This means that, considering the fatal mass disaster of humanity resulting from nuclear weapons as a man-made catastrophe and asteroid collisions as outer space threats, humanity is both developed and disrupted, and may even face extinction in a powerful event or at a certain moment that has not yet come.

The timescale and physical scale of FAST illustrate the power of infrastructure and the unknown. FAST began operations in 2016, following site selection and on-site inspection from 1994 to 2005 led by Chinese astronomer Nan Huairen (1945–2017). The final location was determined to be Kedu town's Dawodang in Pingtang County, Guizhou. The selection of Guizhou was based on two essential conditions: mild weather and minimal signal interruption. The region's ideal outdoor climate and geological conditions, including karst caves and mountain brackets, create a favorable environment for constructing FAST. This concept of climate as a medium for infrastructure was coined by Yuriko Furuhata (2015). The construction of FAST involved minimal artificial climate control and a focus on the integration of the natural environment with the built environment. Another important factor was the spatial separation between the infrastructure and the local community. The twelve households that lived in Dawodang were evacuated and relocated to the nearby Kedu town in 2009, which has since transformed into a new astronomy town for FAST-themed tourism (Figure 4.14). The tourist arrangement is centered around FAST as the main attraction, including Light Year Away Hotel, which is the closest

location to FAST, and the Guizhou Radio Telescope Observatory, where actual data collected by FAST is stored in a data center and transmitted to remote research institutions. The transformation of the former rural area and agricultural land, along with the relocation of local residents, has turned it into an integral part of FAST's infrastructure space. However, this spatial transformation does not preserve the local identity but instead creates a new identity based on FAST as a space infrastructure in the context of tourism and economic development. For the villagers and local residents, the FAST industry provides a means of making a living, while for tourists and outsiders, FAST physically, culturally, and ideologically articulates scientific observation, sci-fi cultural productions, and a future national imagery associated with space infrastructure.

Figure 4.14: Wall paintings themed on the Armillary Sphere in ancient China and planets in the universe are featured in FAST astronomy town (*Source* Photos by the author, 2023)

Guizhou's Space Infrastructure in the Age of the Anthropocene

FAST articulates and stimulates the idea of the age of the Anthropocene in a sense of more-than-human scale in relation to reflecting on the planet Earth and beyond. Radically, the iconic photograph "Earthrise," taken by Apollo 8 from lunar orbit, depicts the planet Earth as a blue marble in its entirety. This spatial representation from outer space creates a visual effect that elicits an emotional connection to Earth. It also prompts a series of questions: To whom does the Earth belong? What does the future hold for Earth in terms of Gaia and its relationship with space infrastructure in the age of the Anthropocene?

The Anthropocene, the current geological epoch, is characterized by the accelerating, deepening, and crumbling imprint of human activity on Earth. The term was coined by Dutch atmospheric chemist Paul Crutzen in 2000, and it commonly refers to the period since the late 1700s' Industrial Revolution. This period witnessed the significant exploitation and alteration of the natural environment by humans. The consequences of the Anthropocene are predominantly negative, leading to the extinction of species and the transformation of the Earth's geology, ultimately posing a disastrous fate for humanity. On the other hand, in Bruno Latour's words, "human agency has become the main geological force shaping the face of the earth" and it also implies "responsibility."[66]

[66] Bruno Latour, "Anthropology at the Time of the Anthropocene — A Personal View of What is to be Studied." Accessed December 12, 2023. http://www.bruno-latour.fr/sites/default/files/139-AAA-Washington.pdf

Technologically advanced atomic explosions, symbolized by the iconic mushroom clouds from the bombings of Hiroshima and Nagasaki, serve as a stark reminder of the human condition and the apocalyptic crisis we face. However, these explosions are just one facet of the fallout from the Anthropocene. The nuclear testing conducted in American deserts, notably the Nevada proving ground and subsequent atomic explosions, have resulted in the continuous production of radioactive materials and water contamination. Philosopher Hannah Arendt refers to this as the "anthropogenic environment," where humans inhabit a fabricated world on a man-made sphere, epitomized by events like the launch of Sputnik. In this context, the survival of humanity becomes centered on biological factors, at the expense of meaningful political actions (Fay 2018). Despite this, the visual and aesthetic representation of atomic explosions through archival photos, films, documentaries, and other visual productions confirm and evoke the Anthropocene as an (un)predictable shared dilemma. Space infrastructure in the age of the Anthropocene means hopes and uncertainty from both man-made and natural catastrophes. It also means the anticipation and construction of infrastructure beyond humanity and planet Earth to realize hopes and prepare for uncertainty.

In this section, I contextualize and articulate how Guizhou's space infrastructure mediates and transmits a speculative future in material and visual dimensions through the concept of frontier—geopolitically, ideologically, and culturally. Furthermore, its existence involves emerging aesthetics of space infrastructure for sci-fi imaginaries and local adaptations. FAST, embedded in a karst sinkhole, not only produces enormous data through radio signals for scientific exploration of outer space unknowns but also responds to and evokes the geological narrative of the karst landscape and native and outsiders' local interests. Outside of the grand narrative of the power and sublime of space infrastructure, these interests may relocate the space infrastructure "under the cloud" as weather still dominates everyday human activities. Guizhou's weather is regarded as stable and favorable for the habitation of FAST. Considering weather as one of the essential natural conditions for FAST operation and function mediated through human activities, it exists in a mundane and frequent action and observation mediated by weather hydrogen balloons ascending to the sky twice a day. This is how the elemental media role of weather is to be conceived, as Durham (2015) writes:

> Weather as an essential human interest has always been a fundamental part of news in all forms, but a weather report given daily, regardless of drama, is a symptom of a modern telecommunications infrastructure.....Weather is not climate. One is *kairos* and the other is *chronos*. Nobody talks about yesterday's weather, but climate consists of long-term averages that can reach back decades, centuries, millennia, and more. (2015, 249, 253)

Guizhou's infrastructure space manifests itself through both material and ideological dimensions, bridging a profound intersection where contemporary development intentionally and intensively merges with the region's distinctive karst landscape, characterized by its dramatic mountains, extensive cave systems, and notably cool climate conditions. This unique geographical setting serves as both a physical foundation and a symbolic canvas for infrastructure development. The region's infrastructure narrative weaves together multiple temporal layers, intricately connecting Mao's historical Third Front Line initiative for industrial-military construction with the present-day technological infrastructure dedicated to big data

centers and advanced space exploration facilities, forming a complex and non-linear chronological and cultural tapestry. When examining the contemporary infrastructure developments in Guizhou, the concept of "new" takes on specific significance in both its conceptualization and promotion, primarily centered around data information systems and scientific technological advancement. This infrastructure development carries dual implications: while it embodies national and local governmental promises for China's future technological and economic progress, it simultaneously engages in a dynamic dialogue with Guizhou's geological heritage, where the deep time and deep space of the karst landscape serve as a counter-narrative to conventional infrastructure dynamics, offering alternative perspectives on infrastructural heritage and promises.

CHAPTER 5
Infrastructuring Ruins and Futures in the Anthropocene: "Ghost Cities" and the Speculative Landscapes of Chinese Science Fiction

The world dominated by its phantasmagorias ——
this, to make use of Baudelaire's term, is "modernity."
—— Walter Benjamin, *The Arcades Project*

"Futures not achieved are only branches of the past: dead branches."
— Italo Calvino, *Invisible Cities*

"I came into the world under the sign of Saturn
— the star of the slowest revolution, the planet of detours and delays."
— Walter Benjamin, *Aesthetics and Politics*

Counter-aesthetics is a "structure of feeling" (according to Raymond Williams)[67] of the infrastructure age, which comprises the emergent and residual aspects of infrastructural reality. In other words, the infrastructure form is predominantly critical architecture rather than urban planning as neutral or rational consequences for urban configuration and landscape, where the problem of aesthetics matters in (post)modernity. As Fredric Jameson argues that aesthetics concerns everyday life as a critical dimension of cultural problematic analyzed in "postmodernism," [68] I propose the idea of counter-aesthetics of infrastructure narrative in contemporary China—"ghost cities" and urban ruins—framed in visual culture for visibility by and beyond the force of capitalized globalization. In this context, the Chinese characteristics of modern spatial production and spatial practices embodied as infrastructure are more than ideological propaganda in material forms; they are a critical reflective viewpoint of contemporary China in an age of infrastructure in its counter-infrastructure side in the process of spatial modernity.

This spatial modernity of infrastructure essentially perceives and evokes aesthetics in politics. In addressing and revealing the aesthetics of art as sensible conception, argued by Jacques Rancière (2009), modern aesthetics is in the essence of politics on collective life and emancipation. Rancière's aesthetic analysis serves as the theoretical foundation for thinking on the politics of aesthetics and aesthetics of politics. Either art or politics performs in the representation of space and shared public space. It also depicts Walter Benjamin's spatial fragmentations where thoughts and experiences are in the concept of ruins. Philosophically, the aesthetics embodied in ruins is "tragic—but not as sad—because destruction here is not something senselessly coming from the outside but rather the realization of a tendency inherent in the deepest layer of existence of the destroyed" (Simmel 1958). The feeling of existence in ruins is the very representation of counter-aesthetics in poetics and possibilities through an infrastructure lens. In this sense, this process is in looking back at the historical moments and lineage, reflecting on the disengagement of human traces, and rewriting the space towards a speculative future.

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[67] Devika Sharma and Frederic Tygstrup (eds.), *Structures of Feeling: Affectivity and the Study of Culture*, (Berlin: De Gruyter, 2015). Accessed December 12, 2023.
doi:10.1515/9783110365481, ISBN 978-3-11-036548-1, retrieved 2024-10-08

[68] Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (Durham: Duke University Press,1991). Accessed December 21, 2023.
https://www.marxists.org/reference/subject/philosophy/works/us/jameson.htm

As the possibilities of infrastructure are delivered through the contribution and configuration of aesthetics, it also considers alternative aesthetics with Chinese meaning and heritage as a spatial culture lineage. In discussing the notion of *shanzhai* (literally meaning "mountain fortress," with its contemporary usage as counterfeit or fake), Byung-Chul Han (2017) illustrates it as deconstruction in Chinese rooted in Chinese culture and Chinese thoughts. In other words, *shanzhai* is a critical and cultural concept to understand the "Chinese characteristics" against Western domination:

> Although it has no creative genius, nature is actually more creative than the greatest human genius. Indeed, high-tech products are often shanzhai versions of products of nature. The creativity of nature itself relies on a continual process of variation, combination, and mutation. Evolution too follows the model of constant transformation and adaptation. The creativity inherent in *shanzhai* will elude the West if the West sees it only as deception, plagiarism, and the infringement of intellectual property.

Accordingly, under the socialist ideological narrative in China, the notion of *shanzhai* encompasses the capacity and interpretations as hybrid and constant reformations. The construction of *shanzhai* indeed demonstrates the concepts of "deconstruction" and "counterculture" (Hennessey 2012). The deconstruction of dominant discourse, which the notion of counterculture delivers, offers variations or opposition to Western-dominated "globalized innovation culture" (Hennessey 2012, 630). This is how the essential cultural analysis approaches *shanzhai*: "how discourse and imagery are organized in complex and shifting patterns of meaning and how these meanings are reproduced, negotiated, and struggled over in the flow and flux of everyday life" (Murdock 1995). Here, I propose that the aesthetics of *shanzhai* as a Chinese modern architecture model emphasizes a notion of counter-aesthetics rather than the globalized aesthetic pattern. On the other hand, the anti-aesthetics in postmodernist cultural context is elaborated in Hal Foster's edited essay series on the idea of anti-aesthetics:

> Here then, "anti-aesthetic" is the sign not of a modern nihilism-which so often transgressed the law only to confirm it — but rather of a critique which destructures the order of representations in order to reinscribe them. (Foster 1983, xv)

Demolition, *lanwei* architectures, and "ghost cities" as counter-practices of infrastructure space in contemporary China. These inevitably serve as sensitive and spectacular representations of the residual modern infrastructure. In this lineage of modern aesthetics with politics and poetics of ruins, the analysis of counter-aesthetics in this chapter emphasizes the alternative narratives as cultural identity for post-socialist China's context. On the other side, the spatiality of ruins is an unlearned context from human consciousness with poetics of infrastructure context.

In particular, I do not intend to address the visible and salient failure or collapse as the phenomenon or consequences of the assemblage of infrastructure in terms of Steve Graham and Simon Marvin (2001)'s notion in the global capitalist context, but my aim is to elaborate on the idea of counter-aesthetics in these very spectacles and spatial experiences in the residual infrastructure space as semi-ruins and haunted imaginations in subtlety and ambiguity. It is not about the absolute decision to reveal or conceal the infrastructure as spatial entities, but how the unbounded relations

between hope and suspension form the shadow of counter-infrastructure. The possible imaginaries opening up in spectacular infrastructure as a promise of socialist and post-socialist regimes both conceal and reveal the sensitive perception as future promise (Schwenkel 2015, 524) and the way socialist modernity configures the specific spatial aesthetics in its grand material form of infrastructure progress — affective capacities of infrastructure (Braun and Whatmore 2010). This is how the idea of "counter-aesthetics" roots in its socialist spatial practices as spatial production in the process and results in rapid social and political-economic transforming effects as well as fragmented memories evoked:

> Obsolescent infrastructures, as sanctified ruins (and objects of touristic desire), can remain affectively charged long after the technological dreams attached to them have vanished, in this case linking life and death, and nature and city, while sustaining the social collectivity through memories of the infrastructural legacies of past futures. (Schwenkel 2013, 125)

In the previous chapters, I have likewise established relevant examples which reflect on ruins and *lanwei* architecture as part of the infrastructure narrative and its cultural memory. From Zhengzhou's fangcang hospital in the aftermath of the Covid pandemic as well as the ghost cities' media circulation of Zhengzhou Eastern District New Zone and Ordos; Chongming Island's factory ruin as new cultural capital for contemporary art, to Ocean Flower Island's speculative future with its residential buildings and construction, to Guizhou's socialist ruins as historical lineage of the Third Front Line in Mao's China and during the Cold War's consequences as well as in contemporary discourse. Furthermore, the counter-infrastructure I propose particularly embodies counter-aesthetics through infrastructureality as a spatial counter-product. In this section, I elaborate on a particular case study in the form of an essay film to illustrate how the concept of infrastructureality visualizes and spatializes as counter-aesthetics in the age of the Anthropocene. On the one hand, the temporality of infrastructure as ruins in the form of *lanwei* architecture and ghost cities haunts as infrastructural reality; on the other hand, other possibilities of infrastructure emerge: the present stops, the past revokes, and the future bifurcates.

Ghost Infrastructureality: *A Pile of Ghosts*

China's "ghost cities" lie in the shadow of contemporary urban infrastructure. With their distinct, empty spaces, these ghost cities, in turn, generate a subtractive space — a shadow — that lies as a backdrop against the progressive fullness of urbanization. In doing so, this subtractive space of urban infrastructure, constructed from replicas, demolition, and contemporary ruins, narrates a poetic desire for a space that lies in between reality and fantasy. Here, and in a similar vein, Ella Raidel's essay film, *A Pile of Ghosts* (2021), portrays a ghost "infrastructureality" in its presentation of the demolition of space, *shanzhai* architecture (copied buildings), and abandoned high-rise buildings. Where contemporary urban infrastructure grows and progresses beyond the imaginable, it also inevitably reshapes a contemporary man-made ghost of reality — a ghost "infrastructureality".

The global capital in housing investment is a reflection of China's cultural capital — a capital built upon the high-rise buildings that fill its modern cities, and its numerous miniature theme parks that are not only modeled after Western-style architecture but intended to be replicas of various Western tourist destinations as

well. Where the former — its high-rises buildings — are concrete spaces meant to occupy, fill, and shape the city's urban infrastructure, the latter alludes to a spectacle and appropriation of the West, and reveals China's deep-seated desire to be a part of, and within the shared, global space inspired by the West and its supposed sense of modernity, a space it was resolutely left out from. In contrast, and instead of 'filling' the city, the subtractive spaces of China's ghost cities and their demolition opens speculative spaces that form the backdrop of capitalist spatial product and contemporary urban infrastructure.

These ghost cities are the primary subject of Raidel's film, *A Pile of Ghosts*, which is translated in Chinese as *Yiku Gui* . The title is taken from a *huaben* (storytelling or script) in the Song dynasty (960-1276), *West Mountain, A pile of Ghost*, which the folk story tells a scholar who was wed to a ghost wife. As the film captures contemporary ghosts in a sense of global cultural fantasy, the up-to-date Chinese ghost story is haunted by westernization, capitalism, and urbanization. Going further, spatially and linguistically speaking, the word *ku* in Chinese is used in a historical context to refer to Buddhist caves such as *Mogao Ku*, or in a contemporary context to *Pinmin Ku*, which refers to slums, and urban residential areas that are highly populated by impoverished and marginalized people. However, Raidel's *A Pile of Ghosts* is not associated with any of these two contexts, but instead with an infrastructural space meant for and embraced by various "ghosts". This infrastructural space is one that is formulated by a man-made ghost of urban reality and takes form in three parts in Raidel's film: *Shanzhai*'s miniature theme park; numerous unoccupied high-rise building complexes; as well as housing demolition.

In the powerful flow of capital that fuels the process of constructing, and later demolishing urban infrastructure, the spatial product manifests itself in a visual and performative form in Raidel's film. The first five minutes of the film feature replicas of world-famous landmarks in Chinese theme parks, including the Eiffel Tower in Paris and the Parisian-style architecture of *Tianducheng* in Hangzhou, the Sphinx in Egypt and The Parthenon in Athens in Lanzhou New Area, as well as the unfinished Disney-esque castle in the abandoned Wonderland Amusement Park in Beijing. Serving only as a backdrop or a display, or at most a contemporary means of earning capital, the infrastructure of *shanzhai* architecture functions as nothing more than an imitation of a visual and spatial experience of temporality. These constructions of *shanzhai* architecture can only grow increasingly distant from the everyday reality they can only wish to recreate. Here, the immiscible nature of the spectacle of tourism with the physical force of labor — felt ever so strongly especially with the country's unfinished and later abandoned projects — highlights the contradiction between China's "visual utopia" and its dismal reality. Instead of the concrete fulfillment of a promised future, the "visual utopia" in post-socialist China is characterized by a spectacle of shared spatial production, meanwhile signifies the desires of social and global mobility as well as cultural capital (Pan 2015, 156, 166).

The subject of Raidel's film shifts to China's scores of unoccupied high-rise building complexes, in which the subtractive spaces of urban infrastructure — ghost infrastructureality — manifest themselves in. What initially appears to be well-developed real estate planning is quickly revealed to be far-fetched and a ruse, as the reality of real estate salespeople (realtors) who market these buildings and their incomplete infrastructure, as well as the migrant construction workers who toil

through the hard labor of building them, are brought to the forefront — they are ultimately part of the infrastructureality that fails to fulfil the concrete visions of the "promising future" that capital promotes. Raidel's film parallels this reality of realtors and construction workers with a conversation that takes place between a realtor and a potential client in front of a blank green screen. As the blank green screen symbolizes the illusive future delineated by the real estate industry, this conversation is likewise both shadowy and speculative — it is, after all, acted out, almost as if a play of sorts. With the subsequent monologue by a prospective realtor doing her job interview (Figure 5.1) further reinforcing the performative reality that is shaped by global capitalism, the interplay between documentation and reality, fiction and performance in Raidel's film acknowledges the ghosts birthed from China's ghost infrastructureality as well.

Figure 5.1: A screen shot of a young woman being interviewed in front of a green screen (*Source* Screen shot from *A Pile of Ghosts* [2021], Ella Raidel)

The last section of *A Pile of Ghosts* is centered on The Swallows Hotel and its owner, Charles. The hotel, first opened in April 4, 1984 in Chongqing by Charles' parents, has since become a "nail-house" situated in the last shanty town of the city, and sits on a plot of land surrounded by the demolished debris of old houses. Haunted by a number of memories and fantasies relating to The Swallows Hotel, Charles refuses to move, and his adamant resistance to the demolition of the hotel reflects his fear of losing the sense of personal identity and spatial history attached to it (Figure 5.2 and Figure 5.3). The reality of the hotel's impending demolition conjures Charles' affection for his beloved classic Hollywood film, *Waterloo Bridge* (1940), which is also one of his mother's favourites. This, coupled with the emergence of a girl in Charles' everyday life, and who also visits The Swallows Hotel, intertwines fantasy and reality, as the tragic romance of *Waterloo Bridge* infiltrates Charles' day-to-day life, roving with him across the city's infrastructural spaces. Here, Charles' experience, and his unyielding hold on The Swallows Hotel as a marker of personal identity and spatial history highlights the pervasive, urban syndrome of demolition: just as The Swallows Hotel lies suspended in a city of ruins, so does the love story in his imagination whose ending remains suspended — what is left is a haunting narrative of the ghost of urbanization, or "a fiction of capitalism" that can only exist in the in-betweens of fantasy and reality. During my on-site visit to The Swallows Hotel in 2023, the remains demonstrated a mundane demolition site of a former residential area featuring stilted buildings in front of Bin River. Not only was it in a

state of suspension with most houses empty, but it also potentially delivered a sense of counter-aesthetics in which heritage and memory were void—and the haunted experience exists in the cinematic space of *A Pile of Ghosts*.

Figure 5.2: A screen shot of two protagonists at the Swallow's Hotel (*Source* Screen shot from *A Pile of Ghosts* [2021], Ella Raidel)
Figure 5.3: The remains of the Swallow's Hotel in 2023 (*Source* Photos by the author, 2023)

Crucial to this narrative of the ghost of urbanization is the pervasive, subtractive space that converges across the private, urban, and industrial landscape. This is most prominent in the transition from the scene in which Charles and the girl lie silently on the bed in a room at The Swallows Hotel to a one-and-a-half-minute shot of oil pumpjacks working rhythmically in the open landscape of Yumen (Gansu province), all with its soundscape intertwined with Teresa Teng's song, *Reminiscing the Past*, all of which alludes to what Raidel terms as an "imagined sex scene" (Figure 5.4). Here, the power of this subtractive space does not only manifest in the demolition of China's artificial, abandoned infrastructure — it also redirects our focus to an Earth heading towards human-centered disability. Considering how cities are the most powerful in their configuration and visualization of the Anthropocene to transform the Earth (Lovelock 2020, 71), then the infrastructural space of real estate, industrial production, and global capitalism leads us to the Capitalocene as termed by Jason W. Moore. Ghost infrastructureality, in this case, is not an accidental counterpart of capitalist urbanization, but instead emerges as an inevitable yet discursive power from the abundance and eventual abandonment of spatial production in the time of the Anthropocene.

Figure 5.4: A screen shot of pumpjacks working (*Source* Screen shot from *A Pile of Ghosts* [2021], Ella Raidel)

However, where the Anthropocene was conceived as a geological term used to capture the age and dominance of human activities on and throughout the Earth, Donna J. Haraway, in response, coins the Chthulucene over the Anthropocene, arguing that we should instead turn to speculative fabulation to tell alternative stories of the Earth that go far beyond its lauded narratives (Haraway 2016, 51-57). In the spirit of the Chthulucene, then, *A Pile of Ghosts* characterizes the Anthropocene as a period of ghosts — ghosts of infrastructure. More than just empty and inert materialization, the Anthropocene in this case is full of left-out and leftover remnants of discursive practices that arises from some, if not all forms of capitalist planning. In fact, the fabulation of infrastructure as a ghost, or as ghosts, echoes Haraway's notions of spatial narration — the narrative crafted as urban infrastructure is fabulated as a reality of ghosts in the Anthropocene, or rather, and returning to the term, "ghost infrastructureality." After all, the infrastructural space does not demand narration to begin with, nor does the space instruct itself with a subtractive impulse to go backwards in history or ahead in decay — in this reality, its ghosts can only find their place in the landscape of the Anthropocene, crafted by the expanding infrastructure of ghost cities and abandoned spaces.
It is worth noting that many of these ghost cities can also be experienced virtually as urban exploration-themed visual content, which circulates widely on popular Chinese social media platforms such as the video-sharing website *Bilibili* (or B site), where viewers' comments can, in fact, be overlaid on the videos in real time, as well as *Little Red Book* (an Instagram-like application). Rather than serving as dark tourist locations historically associated with manmade catastrophe or death, this unofficial and temporary visual archive of ghost cities can also be thought of as a patchwork of infrastructureality in the Anthropocene, crafting their own sort of narrative to the ghosts that reside in these spaces.

Raidel's ongoing art-based research project, *Of Haunted Space*, which includes *A Pile of Ghosts*, is a visual "cartography" of global capitalism in contemporary China. More specifically, it showcases multiple Chinese ghost cities as a backdrop to the performance of global capitalism. In turn, *Of Haunted Space* contextualizes a concept of 'ruin' in relation to Chinese ghost cities. Where Art historian Wu Hung has traced this "ruin culture" from ancient to contemporary China, and in particular, the urban ruins that arise from contemporary Chinese artistic practices, Raidel's *A Pile of Ghosts* presents us with a *third* kind of ruin beyond "monumental industrial ruins and intimate urban ruins" (Wu 2012, 241) — that which exists in the ruins of ghost cities, and from which infrastructure and urbanization materialize as empty spaces, ghosts that accumulate within a nonproductive reality.

As we return to Raidel's translated title, *Yiku Gui* , it is interesting to note that the further deconstruction — demolition, even — of the character *ku* reveals that right in the middle of the word is the part *shi* , which refers to a dead body. In many ways, the infrastructure of the character *ku* seems to shelter these dead bodies — these ghosts — who are deprived of and from space (demolition) or trapped within them (in empty cities). Raidel's *A Pile of Ghosts* is ultimately a response to Haraway's call for a movement towards the Chthulucene, in its narration of the numerous subtractive spaces that make up the Anthropocene's infrastructureality.

Urban Ruins as Counter-aesthetics in the Age of Infrastructure

If *A Pile of Ghosts* tells how these haunted experiences in fictional narratives emerge through the reality of urban ruins, the emptiness is full of "ghosts" of spatial memories. It is about infrastructure landscape as a spectacle of ruins in its counter-aesthetic formation. In Michel de Certeau's (1980) words on haunted places, "memory is a sort of anti-museum: it is not localizable." This temporality, uncertainty, and unfixed modern experiences thus fabricate the counter-aesthetics as the infrastructure landscape.

In contemporary China, the discussion on urban ruins is a fundamental problem due to the demolitions in the rapidly urbanizing landscape. On the one hand, it performs the dimension of reflective nostalgia as part of global culture which is retrospective, where "the fantasies of the past, determined by the needs of the present, have a direct impact on the realities of the future." It also touches on the idea of ruinophilia in the architectural context of public space where modern ruins "keep alive memories of destruction and of multiple contested histories and coexisting temporalities." In this sense, "Nostalgia can be a poetic creation, an individual mechanism of survival, a countercultural practice, a poison, or a cure" (Boym 2007). However, keeping in mind that the changing conception of time contributes to the sense of nostalgia, this chapter shifts the focus from layered temporality to the sensibility, intimacy, and possibilities as aesthetics and its counter-aesthetics, thinking of infrastructure as spatial reality in speculative futures. On the other side, the poetics of a city are rooted in its "cultural memories," which are the haunted places as ruins (Chen 2024, 27–28). Compared to the idea of "drosscape" that regards "the entire urbanized region as waste product" in the American wasted landscape (Berger 2007, 12), the haunted space as counter-aesthetics addresses socialist China's urban ruins from the lens of infrastructure.

The Infrastructural Future in Chinese Science Fiction Films of Socialist China

While ruined infrastructure manifests the material imaginaries of contemporary China's infrastructural space, Chinese science fiction provokes speculative infrastructure imaginaries that bridge the past and future both for socialist utopia and in catastrophes. In socialist China's historical background, the Great Leap Forward (1958–1962), which was a political, industrial, agricultural, and cultural movement driven by the Five-Year Plan, embodied socialist ideals and utopian visions and was set as a political promise and a collective aspiration. In particular, this ambitious endeavor aimed to accelerate the realization of socialist ideals through advancements in astronomy, spacecraft, and space infrastructure. The nation's investment and socialist aspirations laid the groundwork for modern technological infrastructure, forming the foundation for science fiction development in China's socialist future. The final chapter shifts focus from the counter-aesthetics of ruins as haunted spaces of infrastructural reality in contemporary China to the counter-aesthetics in the lineage and spatial narratives of sci-fi films in socialist and post-socialist Chinese contexts, explored through an infrastructural lens. This counter-aesthetic analysis, building on the concept of infrastructural ruins as spatial residue and spectacle in suspended futures, extends to the realm of fantasy, imaginations, and catastrophes on a planetary scale for speculative futures. In this sense, I argue that the cultural identity of contemporary China exists through the lens of infrastructure with counter-aesthetics, manifested in cinematic visual spectacles and

artistic expressions, which considers the social and cultural contexts of both official narratives and folk science perspectives.

In the early years of socialist China, sci-fi imaginaries of space exploration and infrastructure were visually depicted in propaganda films, often characterized by a rhetorical style akin to "rhapsody." *Rhapsody of the Ming Tombs Reservoir* (1958) is widely considered the first Chinese sci-fi film after 1949 (Figure 5.5). I argue that it initiates the spatial imagination of massive infrastructure for socialist China's future narrative. The film portrays the large-scale engineering infrastructure, specifically the reservoir, as an exemplary spatial practice and production for a socialist utopian society. This portrayal is based on the belief in "Reshaping Mountains and Rivers," emphasizing mass mobilization over machinery. Furthermore, the scientific and technological projection for climate control highlights a philosophical romance with the sun and spacecraft. For instance, in the children's educational sci-fi film *Little Sun* (1963), young pioneers pursue the dream of creating a second artificial sun (satellite) for socialist construction (Figure 5.6). The socialist utopian vision of spatial imaginations and ambitions has had a lasting, powerful, and dramatic impact on technology-based infrastructural imagination in contemporary China.

Figure 5.5: Screen shots of aircraft and digital video-audio device appeared in film *Rhapsody of the Ming Tombs Reservoir* (*Source* Screen shots from *Rhapsody of the Ming Tombs Reservoir* [1958], Jin Shan) and the on-site views of today's Ming Tombs Reservoir in Changping District of northern Beijing (*Source* Photos by the author, 2023)

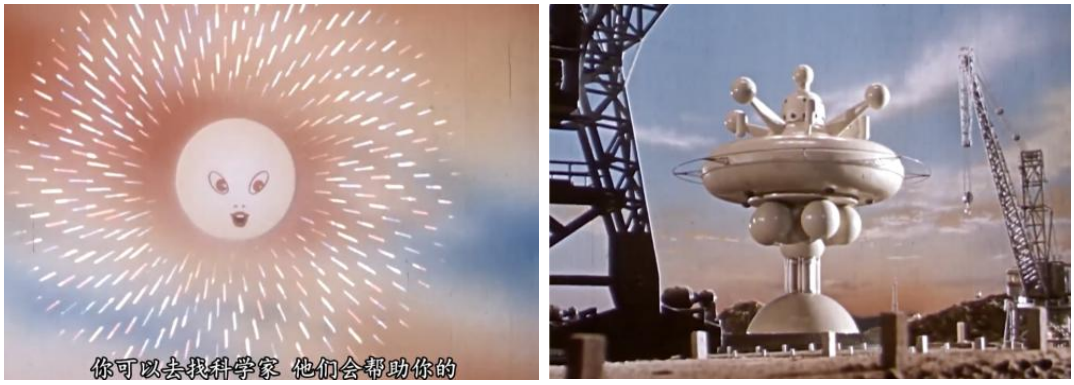

Figure 5.6: Screen shots of the little sun and the spaceplane the film (*Source* Screen shots from *Little Sun* [1963], Wang Minsheng)

In this light, the power of infrastructure and its future spatial imagination extends to the beyond-human scale in relation to planet Earth in a context of globalization and technology. Strikingly, the space elevator and aircraft depicted in the Chinese sci-fi blockbuster film series *The Wandering Earth* (2019 and 2022) thus become an updated spatial representation of China's infrastructural imagination (Figure 5.7).[69] The concept and practice of Earth as a spaceship was popularized by American architect and futurist Richard Buckminster Fuller (1895-1983), who developed the term "Spaceship Earth" in the 1970s. In his 1969 book, *Operating Manual for Spaceship Earth*, Fuller analyzed the conditions and survival strategies of Spaceship Earth, empowering sustainable understanding and manual knowledge of Spaceship Earth for humanity's future. Inspired by Fuller's thinking, I address the theme of thinking of planet Earth as a whole, but *The Wandering Earth* also accentuates differing counterparts. First, Fuller's metaphorical redefinition of our native planet as Spaceship Earth is implausible. The Spaceship Earth is a vehicle that demands benign energies to maintain and renew the sensitive system for a smooth flight and safe landing. To safely operate Spaceship Earth, we must ensure that technology does not reinforce ignorance in our cognitive competence living on Earth. The comparable hypothesis is coexistence between humans and the Earth. Fuller's design aims to excavate humans' potential and facilitate knowledge for a sustainable future living on Earth. On the other hand, *The Wandering Earth* project has only one exclusive mission: to escape from the solar system. That is to say, "the schooling concentrated on the physical sciences and engineering" (Liu 2012, 33). Second, Fuller focuses on producing new knowledge about the Anthropocene that rethinks humans' "problem-producing behaviors." This knowledge of the manual for Spaceship Earth is for managing ignorance living on Earth and diagnosing the problems in the future (Sloterdijk 2015). In contrast, *The Wandering Earth* project has to be fully dedicated to the ultimate goal to land outside the solar system. In this sense, co-immunity and coexistence of humans and nonhumans do not exist in "The Wandering Earth" project — twelve thousand colossal Earth engines located in Asia and North America to escape completely change the climate of the Earth due to the alteration of natural operation law of Earth rotation and revolution — "Our world had been reduced to a Mars-like desolation" (Liu 2012, 75). This potentially depicts

[69] *The Wandering Earth* is a Chinese sci-fi blockbuster directed by Frant Gwo 郭帆, which grossed $700 million and gained enormous international attention (it is also available on Netflix). The film is a rough adaptation of Liu Cixin 刘慈欣's eponymous novelette from 2000. According to the film adaptation, in the near future, an all-human, millennia-long project called the "Wandering Earth" is initiated to ensure survival from the expanding Sun. This project involves Earth engines and will take 2,500 years and span 100 generations. An excerpt from the film shows Earth passing Jupiter and escaping its gravitational pull as it sails towards the Alpha Centauri system.

the decisive capacity of man-made infrastructure, which involves a planetary thinking to consider the planet Earth as the entity.

Figure 5.7: Space Elevator in film *The Wandering Earth* (*Source* Screen shots from *The Wandering Earth* [2022], Guo Fan)

Lastly, planetary thinking involves the task of considering the planet's conditions and limitations to grasp "the essence of modern technology according to Heidegger" (Hui 2020: 868). In the case of *The Wandering Earth*, it presents a cinematic imagination that goes beyond the Hollywood version of the planet's future (Wang 2021, 228). The Spaceship Earth depicted in *The Wandering Earth* is situated within the framework of planetary thinking, taking into account its scale and the need for survival. On one hand, the process of resource exploitation is accelerating, posing significant demands. For instance, during the 500-year journey to Proxima Centauri, "half of Asia's mountains would be consumed, burnt in the Earth Engine's nuclear fire" (Liu 2012, 74). The decision to transform Earth into a spaceship, rather than constructing individual spacecraft, is based on the belief that Earth's ecological system, at its scale, is the only sustainable vessel for life. Paradoxically, non-human beings such as animals and plants have little chance of survival or shelter in the natural environment during this journey, unless they relocate to underground artificial spaces. On the other hand, in the sci-fi setting of *The Wandering Earth*, the primary threat is a planetary catastrophe resulting from the life and death of the sun, which justifies humanity's hopes and desires beyond the guilt of man-made disasters in the Anthropocene era. If we consider that "planetary thinking" encompasses and advocates for diversity from both biological and technological perspectives (Hui 2021), then the planetary thinking depicted in Liu Cixin's *The Wandering Earth* provides an opportunity for humanity to reflect on the micro experiences of beings, such as the experience of natural light, stars, day and night, and the coexistence of everything on the planet. Consequently, *The Wandering Earth* represents an unprecedented infrastructural project to journey with Earth beyond the solar system. The idea of the entire planet Earth as space infrastructure, or an independent space infrastructure separate from Earth, becomes a contested concept for the future of humanity. In the film *The Wandering Earth*, the United Earth Government launches the Helios Project as an alternative plan to abandon Earth. The project's objective is to archive comprehensive data of humans, animals, and plants, serving as a means of preserving human civilization, akin to the metaphor of Noah's Ark. However, the Helios Project fails to provide the protagonist with the faith and sacrifice necessary to achieve their goal of saving all human beings. In contrast, the suspension of *The Wandering Earth Project* in Liu's original story presents a dilemma. If people initially believe that the Sun will not explode and destroy the Earth, but then witness the opposite outcome, their hope is completely shattered in that moment.

Consequently, the infrastructure becomes an active force in *The Wandering Earth*, reconfiguring the biosphere and atmosphere both inside and outside of the Earth. When viewing the Earth as an infrastructural machine, survival becomes indicative of humanity's overwhelming desire for supremacy.

In the political and ideological context, infrastructure plays a critical role for spatial narrative for the "New Cold War," as argued by Stephen Teo (2023). This metaphor reflects the geopolitical theme of cooperation and confrontation between the United States and China. Chinese sci-fi films, such as *The Wandering Earth* series, exemplify China's rise in the film industry, science and technology, and modernity. The development and future of infrastructure represent a promising future or a solution for the apocalyptic future of mankind in today's new Cold War logic. However, a more radical perspective is to view the (sci-fi) future through the lens of infrastructure, specifically seeing planet Earth as infrastructure. If the film *The Wandering Earth* proposes a potential future for humanity with the planet Earth, it goes beyond the problem of globalized capitalism and becomes a problem of imagining space (whether it is the planet Earth or another Earth). Drawing from Doreen Massey's (2005, 9) propositions on *space*, this concept embraces the plurality and multiplicity of coexisting spheres within an ongoing process of material practices. Infrastructure, in its existing and imagined scales, exemplifies this fundamental proposition of spatial matter. As a result, in the case of *The Wandering Earth*, infrastructure serves as a means of transforming and altering the planet Earth to construct a future for humanity through advanced technology. Politics and ideologies shape the construction of space, and space becomes a possibility for political imagination and aesthetic visual expression.
If the cinematic narratives on infrastructure for spatial imagination, seen in early socialist Chinese sci-fi films and *The Wandering Earth*, reveal both official and unofficial dimensions of sci-fi construction in the Chinese context, then, further through the lens of infrastructure, the future is told, explored, and fabricated in other possibilities from a Chinese Folk Science perspective.

Chinese Folk Science Retelling Sci-fi Infrastructure: UFO, Antenna/Satellite, and *Qigong Fever*

The space infrastructure extends beyond its official description and generates popular interest and imagination for future developments, cultivating a cultural phenomenon. In this case, Chinese folk sci-fi experienced a surge in popularity during the 1980s and 1990s, following the implementation of the Open-door policy in 1978, with a potential resurgence in the 2020s. During the *Qigong* fever in the 1980s and early 1990s, the pot, originally used as a family cooking utensil, was repurposed to connect and receive signals from space. On one hand, the narrative of the information pot represents a sub-legacy of the post–Cold War era, encompassing craftsmanship, technological information, and space exploration.

Mediated through the lens of FAST, speculative futures emerge that connect with the interconnected spatial relationships in the ecological, geological, and political timescales and narratives of planet Earth. In contrast to extraterrestrial exploration, the karst landform, which includes caves and sinkholes in Guizhou as well as Sichuan province, serves as the womb of the earth, illuminating the inner spatial-temporal ecology for humans. The 2021 sci-fi comedy (mock documentary) *Journey to the West*, also known as *Universe Exploration Editorial Department* in Chinese,

directed by Kong Dashan (b. 1990), blends various sci-fi media elements derived from the context of folk science fiction: UFOs, information pots, TVs, and folk science (Figure 5.8). The information infrastructure, as depicted in *Journey to the West*, evokes visual and auditory sensations, such as the snowflakes of lost signals on TV and the rural trumpet as a message speaker. During the 1980s and early 1990s in China, an era before the internet, rumors and genuine curiosity about outer space and extraterrestrial civilizations permeated society. In this social and cultural context, folk science and scientists gained popularity. For instance, a crater meteor hunter is featured in *Journey to the West*. Meanwhile, the earliest educational science magazine *We Love Science* and *The Journal of UFO Research* present a more vivid picture of the rise and decline of folk science. Published in 1981 by Gansu People's Publication and self-proclaimed as "The most popular UFO magazine in the world," the digital publication's discontinuation in 2018 marked its end. *The Journal of UFO Research* preserves and celebrates the science fiction visions of a particular era in history. However, the conclusion of the magazine suggests that there exists a specialized understanding of astronomy that creates a gap between space exploration and the broader public.

Figure 5.8: Screenshots of the film *Universe Exploration Editorial Department* showing the protagonist Tang Zhijun with the wooden panel of Universe Exploration Editorial Department, connecting his head with TV's antenna (top); protagonist Tang Zhijun and Sun Yitong standing next to the flight deck and Sun Yitong reciting his poem in a karst cave before disappearing (*Source* Screen shots from *Journey to the West* [2021], Kong Dashan)

As one of the prominent sci-fi media objects, the UFO, in visual art and cinematic narrative, is often used as a symbolic lens to connect the junction between the past and the future, and the social transformation between reality and wonder, rather than being an actual sci-fi imagination. In artist Yang Yongliang's (b. 1980) 2012 digital photography installation, *The Day of Perpetual Night*, Chinese traditional *shanshui* painting and urbanscape are merged in a mysterious and vivid digital landscape. One scene features a UFO that flies in from a distance and hovers above a bridge, using a

light beam to lift one person before quickly disappearing as another spot of light (Figure 5.9). This temporary fictional spectacle highlights the juxtaposition of spaces between the traditional layout of Chinese landscape painting, the cityscape of contemporary society, and the enigmatic presence of the unknown from pop culture. In this light, the digital *shanshui* landscape delineates a multiplicity of spatial imaginations—culturally and aesthetically—in the cityscape of spatial modernity, sci-fi popular imagery, and visual montage, which compress the infrastructural urban landscape and utopian nature landscape in Chinese traditional painting into a dystopian poetics.

Figure 5.9: Yang Yongliang, *The Day of Perpetual Night*, 2012, video installation, 6'47" (*Source* Screen shot from *The Day of Perpetual Night* [2012], Yang Yongliang)

Likewise, to symbolize the hyperreality of reality in Chinese society, UFO sightings are frequently depicted in Jia Zhangke's (b. 1970) films, such as *Unknown Pleasures* (2002), *Still Life* (2006), and *Ash Is Purest White* (2018). These sightings are regarded as reflections of the rapid urbanization and individual destinies that emerged particularly after the implementation of the 1978 Open-door policy. In Jia's vision of the planet's future, as Jennifer Fay (2018) explains, "The arrival of aliens is only the most obvious way in which Jia disrupts the conventions and visual style of realism and, for that matter, humanism" (138–139). According to Jia Zhangke, the UFO sightings remind us of the insignificance of human beings, and the wandering journeys of the characters in his films allow them to broaden their perspectives and become independent individuals capable of taking care of themselves. The UFO sightings thus capture the sense of alienation, isolation, and unfamiliarity in social space, blurring the lines between fiction and documentary, destiny and the unknown, within the context of approaching space infrastructure.

Furthermore, the enthusiasm for science fiction and extraterrestrial topics experienced a boom in post-socialist China, ranging from UFOs to the *qigong* fever. I propose that the *qigong* fever, which is not just a singular phenomenon but rather part of the cultural and scientific development of space infrastructure and imaginations in post-socialist China, is also influenced by Deng Xiaoping's Four Modernizations initiative. According to David Palmer (2007)'s analysis,

> What defines *qigong* in the People's Republic of China as distinct from both other configurations of traditional body technologies, and from other social movements, then, is its alignment of traditional expectations of miraculous powers with the unfolding of the utopian project of modernity and scientism at every juncture of socialist China's history, producing the conditions, as defined above, for a nation-wide charismatic 'fever.' (22)

In this analysis, the modernity of *qigong* is linked to the development of scientism, which aims to project the future of Chinese society and the nation's identity. Despite being a social, cultural, and technological phenomenon of the post-Mao era, *qigong fever* manifests as a form of technological media through bodily and spiritual practices. The connection between *qigong* practice and outer space is mediated and fantasized through the use of a "satellite pot" (a cooking pot) in the context of wireless communications and media information technology in mid-1980s China (Liu 2019). The ordinary and everyday cooking pot transforms into an information medium during the *qigong fever*, offering sci-fi visual imagery. In *Journey to the West*, the character Sun Yitong, a peculiar young villager, wears an aluminum pot and has the ability to receive signals from outer space. However, his daily role is that of a village broadcaster who reads his poems. This poetic representation of signals is embodied in the communications infrastructure and does not represent advanced media technology, but rather symbolizes the primary desires and aspirations of individuals for outer space exploration—reconsidering the space infrastructure in a bottom-up approach and expressing the counter-aesthetics in everyday life.

Likewise, satellites are media that deliver cultural and aesthetic expressions in Western and aboriginal contexts. First, satellite dish claims signal installation in wide surface scale both urban and rural locations. While the social and political struggles embedded in satellite infrastructure, such as "Infrastructure failures thus not only generate other failures in everyday life; they are symptomatic of a broader social failure: the centralisation and hierarchisation of technical knowledge" (Park 2012, 69). Lisa Park proposes a populist approach to analyze satellite:

> Peoples' control over the dish itself, whether through the act of making it, positioning it, using it or decorating it, is significant because it reveals the multiple, expressive and contentious ways in which citizen-consumers connect with satellite infrastructures in the personalised spheres of daily life." (78)

In this case, satellite television particularly represents the cultural activities of rural and low-income people. Satellite dishes encompass ethnic invisibility, political agendas, cultural expressions, and aesthetics, including the design of the dish's facades or surface. For example, in the TV programme *Satellite Dreaming (1991)/Satellite Dreaming Revisited (2016)*, a four-decade-long Australian indigenous media, retells the fight of aboriginal people for their cultural production in the presence through broadcast (Figure 5.10). The aboriginal media is transmitted through local satellite stations, demonstrating the decentralization of cultural autonomy through new media technology facilitated by the government structure and the global circulation of communications technology (Ginsburgh 1993, 558). In response to the official TV program, the Broadcasting for Remote Aboriginal Communities Scheme (BRACS), established in 1987 for satellite TV and radio in Australia, Chris Poulson interprets:

> And the way Chris has always described the situation is that he's seen the danger of television from outside bringing, being a powerful cultural force that would destroy what was there. So he saw BRACS like a shield, he saw that BRACS was out there like a traditional Aboriginal shield, stopping the spears that were coming from outer space, if you like, from the satellites.

> And the programmes that the community would be making — like they were at Yuendumu — those programmes would be the spears going back again, f rom behind the shield...[70]

Figure 5.10: Screen shot of *Satellite Dreaming (1991)/Satellite Dreaming Revisited (2016)* (*Source* Screen Shot from *Satellite Dreaming (1991)/Satellite Dreaming Revisited (2016)*, Satellite Dreaming Revisited, https://satellitedreaming.com/)

Instead of being passive recipients of new media technology, aboriginal media seeks to utilize it to preserve and share their cultural productions, such as traditional dance, as a way to assert control over the media. In the case of cultural production through television broadcast and satellite advocacy by aboriginal communities in Australia, this media infrastructure simultaneously situates and incorporates aboriginal imagery into the broader Australian national imagery.[71] In this way, satellites spontaneously construct spatial imagination through media infrastructure, further contributing to the formation and configuration of cultural identity in both aboriginal and national narratives.

Furthermore, the purpose, rights, and objectivity of satellites as spaceflight vehicles provide an opportunity to reconsider and contemplate the technology infrastructure for outer space. Trevor Paglen's artwork *Orbital Reflector* (2008) seeks to question the definition and application of planetary observation and spatial representation through the concept of a "nonfunctional satellite," as he explains:

> *Orbital Reflector* was designed as a provocation. An opportunity to think about outer space, the geopolitics of the heavens, and the militarization of earth orbits. It's a project about public space, and a project about who gets to exercise power over our planetary commons, and on what terms.

Overall, Paglen's project brings attention to the tensions surrounding the updating and advancement of space infrastructure. This infrastructure can be seen as either a foundation for exploiting space or as representations of space itself. According to Paglen, *Orbital Reflector* allows us to see forms of power and infrastructure that we usually accept without question. It is a satellite whose sole purpose is to reflect sunlight in the night sky and harmlessly disintegrate in the upper atmosphere after a

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[70] Quoted from the documentary *Satellite Dreaming*, (1991), 35:00

[71] The aboriginal and islander people in Australia deliveries the concerns that "broadcast locally produced radio and video material; receive mainstream radio and television programs; control what was being broadcast into their communities." Accessed December 22, 2023.
http://archive.maas.museum/hsc/bracs/index.html

few months. The increasing militarization and weaponization of orbital space highlights the political aspects that spacecraft represent, whether for national or commercial missions aimed at exploiting and excavating shared space. *Orbital Reflector* serves as a specific example within the realm of art projects, providing permission and a reason to contemplate space. In this way, space infrastructure facilitates a conversation and exploration that goes beyond official or national operations. It reveals a desire, wonder, and curiosity in individuals. The artwork also emphasizes the aesthetics of space infrastructure, akin to the form and essence of land art. The space art, whether in the form of a spacecraft or space sculpture, acknowledges the spatial elements of scale, environment, and (in)visibility. By viewing planet Earth as infrastructure, it loses some of its practical quality as a resource and instead prompts philosophical questions about the relationship between humans, non-human beings, and the Earth.

Retrospectively, the aesthetics of "psychpunk" and media archaeology of information infrastructure, combined with the enthusiasm for *qigong* and UFO research, which explore the connection between human bodies and flying craft, cultivate a temporary folk sci-fi passion. This passion evolves into cultural activities, shaping memories, emotions, and poetic imaginations. On a larger scale, UFO research and space infrastructure encompass multiple concepts, such as the "Community of Common Destiny" or a "Community with a Shared Future for Mankind." The political phrase "Community of Common Destiny" was first introduced by President Xi Jinping in his speeches promoting the One Belt One Road Initiative since 2013. This initiative not only serves as a foreign political strategy and a means to establish China's national imagery, but it also involves global-level infrastructure projects that connect countries through spatial practices. Furthermore, the One Belt One Road Initiative poses a challenge to the international power and influence of the United States, as the extensive construction of large infrastructure projects presents a promising future in terms of politics and space. "A Community with a Shared Future for Mankind' also reflects Yuk Hui's concept of cosmotechnics and cosmopolitics. As China's One Belt One Road Initiative challenges unilateral globalization and actively participates in technological acceleration on a cosmic scale, it becomes a significant force in addressing the crisis of the Anthropocene. In this context, science and technology alone are not sufficient for investigating the problems of modernity or ecology. Hui (2017) suggests the development of multiple cosmotechnics rather than relying on a single technology:

> It is astonishing that in Heidegger's so-called *Black Notebooks* (*Schwarze Hefte*)—of which four volumes have been published so far—we find this note: "If communism in China should come to rule, one can assume that only in this way will China become 'free' for technology. What is this process?" Heidegger hints at two things here: first, that technology is international (not universal); and second, that the Chinese were completely unable to resist technology after communism seized power in the country. This verdict anticipates technological globalization as a form of neocolonization that imposes its rationality through instrumentality, like what we observe in transhumanist, neoreactionary politics.

Hui's analysis of Heidegger's hypothesis raised additional questions: How does technology in the politics of a communist regime redefine or offer possibilities for future outer space exploration through space infrastructure? Can the sci-fi

imagination and its delayed technological realization in contemporary China, as well as socialist utopian projects, provide alternative possibilities, such as the totality of Earth and humanity in *The Wandering Earth*?

The parabolic antenna serves as a basic form for the FAST and other ground-based information networks. Weather observation typically relies on weather balloons charged with dihydrogen, and this method is widely used around the world. From a technological perspective, the overall principles remain largely unchanged as we progress. Many radio telescopes were originally adapted from military antennas used during World War II, particularly after the 1940s. Depicted in Liu Cixin's *The Three-Body Problem* at the Red Coast Base on Radar Peak, the parabolic antenna serves as both a military and space infrastructure, allowing us to imagine future possibilities and send signals beyond the solar system. Whether it is FAST or Radar Peak, both projects reflect China's positioning in the global dialogue and its relationship with planet Earth. In other words, the search for extraterrestrial intelligence and defense against potential threats such as asteroid impacts represent the future for humanity and the Earth. The scale of these projects is crucial in terms of spatial resolution and improving observation results. Moreover, the Earth itself is seen as a fundamental spatial platform that enables the utilization of infrastructure to capture signals or harness natural energy from sources such as photovoltaic and wind farms. The scale of the infrastructure also contributes to its aesthetic appeal and its radical visual and spatial representations in science fiction. Most space infrastructure and clean energy infrastructure are designed to create a separation between the entity and humans, forming a vision of future infrastructure landscapes. Conversely, the scale of the universe defines the coordinates and mapping of radio signals.

In this light, a human-centered view based on human scale is both exclusive and reflective in perceiving, configuring, and imagining infrastructure in planetary thinking and discourse. The imagery of "Earthrise," for instance, was an initial and critical moment in human history when a "planetary consciousness" emerged, and a dialectical narrative of planet Earth and humanity unfolded:

> The image of the planet captured in and promoted by "Earthrise," which functioned simultaneously as an aesthetic, scientific, ideological, and utopian work of art, occasions a powerful rethinking of the relations among space, narrative, geopolitics, and the world-system. (Tally Jr. 2015, 196)

Substantially, "utopia, like the planet itself, is a figure of radical alterity" (Tally Jr. 2015, 198). The possibilities and impossibilities of humanity are revealed in such utopian representation of the planet itself, in which the spatial representation of planet Earth from outer space is experienced as a visual spectacle and effect that elicits complex and subtle emotional connections to Earth as planetary space. It subsequently prompts a series of questions: Who does the Earth belong to? What does the future hold for Earth in terms of Gaia and its relationship with machines? The global hegemonic historical narrative portrays the shift from the Cold War to multilateral globalization as encompassing more than just space exploration and technological advancements in space infrastructure. It also prompts critical questions about humanity's future in the face of the Anthropocene crisis. Groundbreakingly, the Gaia hypothesis (Lovelock 1972) suggests that Earth functions as a complex living organism with multiple ecospheres. Similarly, the concept of "Spaceship

Earth" (Fuller 1968) views Earth as a spacecraft and all humans as its crew, responsible for managing limited resources and energy. Both propositions offer a holistic perspective on humanity's existence on Earth, combining imagination with a machine-like ecological infrastructure.

The cul-de-sac of the Anthropocene avers the *telo* of history or the post-apocalyptic narrative occurs. As Peter Sloterdijk (2014) concludes, we think the "Anthropocene" is "an apocalyptic logic framework," (or in Heidegger's term "being-toward-death"), which means "evidence comes from the end." This "apocalyptic logical framework" is constituted by Western philosophy and technology, at least speaking of the idea of "Enlightenment." This logic also indicates whether humans can transform from the "emission" to "mission" utilizing *modus vivendi* and reinforcing "virtuous circles," including six circular processes—visual arts, the credit system, mechanical engineering, the state system, scientific research, and the legal system. The interventions in this self-reinforcing system constitute the gigantic power of "capitalism" in our times. The multiple platforms based on the "stacks" and algorithms are encroaching the psychological space and mental focus of "users," which inevitably shapes the "six systems." In Heidegger's concept, *Ge-stell* is the modern technology collective that structuralizes and frames everything into a processing recourse.

The ongoing consequences of humanity reinforce the relationship of production (according to Marx) and the "moralistic narrative" on the "planetary history." At large, in "planetary thinking," theological consciousness leads humans to question the direction of our future project after modernity on the planet (Hui, 2020). If the motives of globalization and its locus is the combination of politics and capital, the Anthropocene illustrates that humanity goes beyond that; and that the crisis may be worsening, rather than subsiding. The human existence is under the *Gaia* system of protection, survival, and co-existence. According to the "big and magic thinking" of Buckminster Fuller's *Operating Manual for Spaceship Earth* (1969), humans are spontaneous astronauts or "autodidacts." Fuller asserts that an essential problematic consequence is an intellectual specialization that "precludes comprehensive thinking." Higher education in its current form demonstrates this specialization in the extreme. Additionally, the industrial investment supports in a negative way the weapon production and wars. Obviously, this is still a worldwide issue particularly in most large countries and conflict zones. As a result, the nuclear threat is spurring global anxiety and there is no best way to overcome it, only to somehow reach a balance. In *The Shock of Anthropocene: The Earth, History and Us* (2016), the authors conclude in the chapter of "Thanatocene: Power and Ecocide" that "the Second World War thus prepared the technological and legal framework for consumption society" (Bonneuil and Fressoz 2016). The war and its impact not only advanced the technology acceleration in automation, shipment, and natural resources exploitation, but also constructed the global infrastructure space for the Anthropocene. Ostwald claimed that "Warfare is the worst waste of energy," and that military conflicts indeed spurred the destruction of any kind, including "humanity's behavioural repertoire." The subsequent question is how much can the other "self-reinforcing systems" manipulate this military action and what future consequences that will pose to the planet. Perhaps Sloerdijk's paradigm of "ecological war" offers a potential reading of the clouds to answer the assumption of the controlled environment.

Additionally, in the Debate, entitled "Welcome to the Anthropocene," between Peter Sloterdijk and Bernard Stiegler in 2016, they discuss the inner logic of the Anthropocene, such as the guilty or "psycho unbearable" against individuals or the collective, the transformation of live conditioning with the forces and changes of entropy, and the connections between Immunology (Peter Sloterdijk) and Pharmacology (Bernard Stiegler), among other topics. More importantly, we should ask what is knowledge instead of what can I know?[72] To be more exact, Stiegler (2018)'s notion of Neganthropocence concerns the future knowledge and efforts to recognize the "entropy" and "negentropy," raising caring (*panser*) to transform man-made disorders and open possibilities. In the section of "Managing Ignorance," referring to the idea of *Operating Manual for Spaceship Earth*, Sloterdijk suggests that the "monogenism" "forms the basic axiom for a political ontology of nature," and describes a "cognitive relationship" instead of ignorant relationship.[73] "Managing ignorance," rather than religion, reproduction, and apocalypse, is a real possibility. The vehicle of Spaceship Earth designs an artificial sensory system of inhabitation to travel as far as we can. As Wystan Hugh Auden continued in his poem's prologue, "but mortal or not, a world has still to be built." With hopes, we are not escaping Earth, in this adventure, "Don't panic!" Upon the completion of FAST, not only did a space infrastructure of national imagination emerge, but also an Earth infrastructure as spatial practices of representations in imagination that shape the future in the infrastructure of collective existence and future narrative.

At last, philosophically and intellectually, the diversity and complexity of culture in the notion of planetarity paradigm is conceptualized as: "if planetarity is the cultural-discursive matrix of innovative art, then the dialogical and the relational may well encapsulate the planetary aesthetic" (Elias and Moraru 2015, xii). Taking this into account, I propose that the counter-aesthetics of infrastructure narrative address "the alterity of planetarity": "non-totalist, non-homogenizing, and anti-hegemonic operations" attached to "eco-logic" in which cultural base, cultural lives, and aesthetics are grounded (Elias and Moraru 2015, xxiii). Thinking about the planetary turn, I suggest, should take the "infrastructure turn" into consideration as a cultural identity and discourse with visual affects which configure sci-fi narratives in (un)official accounts, space media, and the notion of the Anthropocene. This approach frames the argumentation and exposition on Chinese sci-fi discussion through the lens of space infrastructure.

[72] Welcome to the Anthropocene Debate with Peter Sloterdjijk and Bernard Stiegler, 27 June 2016. Accessed November 2, 2023. https://www.youtube.com/watch?v=ETHOqqKluC4

[73] Peter Sloterdijk,"The Anthropocene: A Process-State at the Edge of Geohistory?" tans. Jonh D. Cochrance (Berlin: Haus der Kulturen der Welt, 2014), 330.

Conclusion
More than Counter-Infrastructure: Toward a Post-Infrastructure Age of China

Infrastructure space in contemporary China presents a complex, dynamic, and reflective field for research, analysis, and reflection on nation-building in the context of rapid development, contested narratives, and the interplay between physical and conceptual elements. Demonstrably, the Belt and Road Initiative boosts and amplifies China's global infrastructure ambitions and strategies, linking national identity to infrastructural development in geopolitical and international contexts, marking a transition from "Made in China" to "China Made." To comprehend China through an infrastructural perspective, it is essential to examine the Chinese context specifically. China's vast geographical expanse facilitates diverse spatial practices in infrastructure development. Concurrently, the inherent complexities and dualities of infrastructure space manifest in the spatial modernity of urban areas, islands, and geological formations. This subject matter is simultaneously too expansive for generalization and too nuanced for facile interpretation. While China's infrastructure age has been characterized by large-scale projects, the post-infrastructure era may necessitate a more granular examination of the intricate connections within the infrastructural framework.

In specific discourses and the paradox of infrastructural realities, the Global North has experienced numerous instances of counter-infrastructure, manifested through delays and suspensions. Notable examples include the recurrent postponements of the UK's High Speed 2 (HS2) project since 2017 and the challenges faced by the United States in renewing its aging civil infrastructure, primarily due to funding constraints and insufficient public backing. Additionally, recent geopolitical conflicts have highlighted the vulnerability of critical infrastructure. The ongoing Russia-Ukraine conflict since 2022 and the Israel-Hamas War since 2023 have resulted in the targeting of essential facilities such as power plants, medical centers, educational institutions, and residential areas in Ukraine and Gaza, respectively. Consequently, the protection and maintenance of critical infrastructure have become paramount considerations in the counter-infrastructure discourse. Notably, global climate change further complicates this landscape, prompting us to think of infrastructure as a media subject, man-made disaster, and factor in everyday lived experiences. Taking the example of the 7·20 Henan Floods in China, this anomalous disaster demonstrates radical change due to climate change, which was officially described as a "once-in-a-thousand-year flood." Thus, the reconsideration, discourse, and investigation of urban infrastructure manifest in politics, ecological and spatial configurations, and narratives—in intensity and temporality, global and local specificity, and media circulation—through visual and rhetorical approaches.

In response to these global trends, China has adopted a distinctive approach to infrastructure development, characterized by its "China Speed" philosophy. This approach is exemplified by the rapid construction of high-speed rail networks and the establishment of strategic infrastructural zones for national security, both inland and in maritime areas. Concurrently, China promotes the concept of "ecological civilization." However, China's perspective on counter-infrastructure extends beyond merely surpassing Western nations in spatial modernity. It encompasses a deeper understanding of infrastructural heritage, collective memories, and cultural

imaginings as integral components of national imagery and cultural identity. In specific cases to understand the contemporary through the lens of infrastructure, Zhengzhou's urban development serves as a prime example of this counter-infrastructure perspective. The city's spatial modernity is shaped not only by state and local government policies on economic growth and labor dynamics within the "world factory" paradigm but also by its infrastructural memory. This memory contributes to a unique cultural identity of the city, characterized by recall, resistance, and decentralization, which particularly manifests in the context of disaster response.[74] On the other hand, in Mao's China, the politics of memory in political discourse, as inscribed in the "Great Production Campaign" (1957–1960), manifested in and was embodied by a particular ideological narrative of Nanniwan Spirit within socialist collective cultural dynamics (Zhou 2013). Memory in critical power configuration and the politics of memory in socialist China's lineage together contribute to the understanding of the power and shadow of infrastructure as counter-infrastructure forces in cultural memory and narrative.

Furthermore, China's approach to future-oriented technological infrastructure for "new infrastructure"—as seen in developments on islands and in mountainous regions—explores speculative aspects of infrastructural experimentation as infrastructurescapes through case studies of geological landforms in islands and karst landscapes. It examines how geopolitics and ecological discourse encounter, rephrase, and assimilate technology infrastructure into frontier narratives within socialist historical construction, geological utilization, and future development impulses. These frontier narratives unveil speculations on future promises in infrastructure space, encompassing capitalist, ideological, and ecological uncertainties, deconstructions, and power dynamics. The implications and latent imaginings of these counter-infrastructure initiatives are increasingly reflected in visual culture and science fiction narratives, offering intriguing insights into potential future scenarios. This intersection of infrastructure, memory, and futuristic vision in China's approach presents a unique case study in the global discourse on counter-infrastructure, particularly in its research methodology of textualization and interdisciplinary prospects.

In constructing and fabricating the cultural identity of contemporary China through infrastructure space—regarding cultural narratives and discourse—the significance of approaching contemporary life through cultural studies can be perceived as:

> ....though its extreme formulations celebrate the politics of contemporary life as a search for particular idenstities that fragment oppositional politics, cultural studies has recognized the energizing potential of multifaceted forms of social agency, each of which brings with it dimensions of subjectivity and consciousness that are vital to political praxis and which have received too little treatment in political economic analysis. (Mosco 1996, 251)

In this vein, the study of infrastructure is multifariously and vividly approached in cultural studies to foreground the politics of contemporary life, multifaceted elemental media and agency, and the narrative of a conscious age we live in and toward. On the other hand, "The modern concept of culture stems from this public

[74] "Film and Popular Memory: An Interview with Michel Foucault," trans. Martin Jordin, Radical Philosophy 11 (Summer 1975): 25, 26; quoted by Alan Megil, "Foucault, Structuralism, and the Enfs of History," *Journal of Modern History* 51 (1979): 500.

access to historical-political identifying signs and to their collective interpretation" (Lyotard, 1982), in which infrastructure forms the cultural identity of contemporary China by reforming the modern concept of culture in both socialist ideological and historical narratives.

In prompting the discussion on infrastructure as concept, practice, as well as a "new age," it inevitably transcends national dimensions, situating itself in the discourse of transnational, global, and planetary perspectives. First, infrastructure in the analysis of modern spatiality configures many realities as cultural memories — if infrastructure age implies something new, it perhaps voids past memories and histories for progressive modernity in politics, ideologies, science, or technological advances. However, as counter-infrastructure has to do with the unlearning of hegemonic, dominant, and centralizing realities, the cultural studies approach to infrastructure manifests and operates through radical contextualization within global and local, dominant and peripheral frameworks, which encompasses sites and places—more than just cities, but regions, locations, and geophysical dimensions. Second, the counter-aesthetics in infrastructure and counter-infrastructure delivers and expresses in growing art-based projects which serve as knowledge production of the infrastructure age. Mainly, I propose two conceptual assertions to approach the analysis of counter-aesthetics of infrastructure space in the Chinese context — haunted experiences of urban ruins and science fiction matrix — in which the visual materials serve as content and cultural analysis. In this way, the multifaceted representations of infrastructure in its meaning and structure in visual culture are being constructed, reconstructed, and deconstructed. Thus, infrastructure is both a physical and metaphorical medium of cultural identity for contemporary China, producing, circulating, and articulating cultural memories in dynamic, altered, and ruptured ways.

If the infrastructure age exists for contemporary China, it has been constructed and deconstructed through spatial modernity and further into postmodernity, which extends beyond a postindustrial age, indicating the context of the post-infrastructure age — in concept and practice, the cultural narratives construct contemporary spatial, temporal, and visual experiences. The post-infrastructure age may not be a truly new period for contemporary China, but rather represents other possibilities and affective experiences of infrastructure in everyday life, with its subjectivity reflecting on desires, imaginaries, and narratives.

Chinese Glossary

Introduction

Xinhuan News 新华社
"mountains and rivers" (shanhe) 河山
Sun Yat-sen 孙中山
International Development of China《实业计划》
Plan's for National Reconstruction《建国方略》
capital construction (jiben jianshe) 基本建设
lanwei architecture 烂尾楼
Third-Front Movement (sanxian jianshe) 三线建设
"Infrastructure Madman" (jijian kuangmo) 基建狂魔
"community with a shared future for mankind" (renlei mingyun gongtongti) 人类命运共同体
West-East Electricity Transfer Project 西电东送
South-North Water Transfer Project 南水北调
Mao Zedong 毛泽东
ecological civilization 生态文明
innovative-oriented country (chuangxinxing guojia) 创新型国家
Three-North Shelter Forestation Program (sanbei fanghulin gongcheng) 三北防护林工程
Xi Jinping 习近平
"man must conquer nature" (rending shengtian) 人定胜天
"The Foolish Old Man Removed the Mountains, Reforming China" (yugong yishan, gaizao zhongguo) 愚公移山、改造中国
"mountainous, dispersed, and hidden" (kaoshan fensan yinbi) 靠山、分散、隐蔽
Chinese Learning as Substance, Western Learning for Application (zhongtixiyong) 中体西用
exceeding the UK, catching the USA (ganyingchaomei) 赶英超美
haze (wumai) 雾霾
China Made 中国制造
The Rhapsody of Ming Tombs Reservoir 十三陵水库畅想曲
Jin Shan 金山
The Wandering Earth 流浪地球

Chapter 1

Liang Yongtai 梁永泰
Where No One has Been Before 从前没有人到过的地方
Longhai Railway 陇海铁路
Zhang Zhidong 张之洞
Jinghan railway 京汉铁路
Feng Yuxiang 冯玉祥
boundary stone 界碑
The Collection Exhibition on Zhengzhou's Old Boundary Stones from Mrs. Zhang Enmao (b.1944, Zhengzhou) 张恩茂先生郑州老界碑收藏展

Xiaoduzhuang Village 小杜庄村
central plains civilization 中原文明
Erqi Memorial Tower 二七塔
the Great Strike of February 7 二七大罢工
1925 May Thirtieth Incident 五卅运动
the Chinese Labour Union 中国劳动组合书记部
Wu Peifu 吴佩孚
“encircling the cities from the countryside” 农村包围城市
Lin Biao 林彪
“Long Live the Victory of People’s War” 人民战争胜利万岁
Pule Theater 普乐园戏院
National Urban-Rural Product Exchange Exposition 全国城乡物资交流大会
Qi Dai 秦岱
Wang Junzhi 王均智
Lin Leyi 林乐义
“ancient tower under shiny cloud” 古塔晴云
Kaiyuan Temple Tower 开元寺塔
Zhang Yue 张钺
Local Chronicles of Zhengzhou 郑州志
the senior provincial government official of Zhengzhou 郑州知州
Liang Sicheng 梁思成
eight sceneries 八景
Aisa (yaxiya) 亚细亚
“Great Bright and Spectacular Hope” 伟大的光明灿烂的希望
People’s Daily Newspaper 人民日报
Happiness Tower of Central Plain 中原福塔
Commodity Exchange 商品交易所
Future Exchange 期货交易所
Jiang Zemin 江泽民
“Constructing Zhengzhou as a socialist modern trading city” 把郑州建设成为社会主义现代化的商贸城市

Chapter 2
Pan Fusheng 潘复生
“Making Green the Motherland” 绿化祖国
China Pictorial 人民画报
The Ballad of Green City (liucheng changxiang) 绿城畅想曲
Huayuankou Dam Burst Incident 花园口决堤
Chiang Kai-shek 蒋介石
Danjiangkou Reservoir 丹江口水库
Zheng Wenguang 郑文光
Ode to Communism 共产主义畅想曲
“Green City Square” 绿城广场

Zhengzhou Jingguang Expressway 郑州京广快速路
“watching the sea in the city” 城中看海
Sponge City 海绵城市
Great Junction, Great Industry, Grand Metropolis” 大枢纽, 大产业, 大都市
Xinzheng 新郑
Luoyang 洛阳
Kaifeng 开封
Jiaozuo 焦作
“silent period” 静默期
Whose Utopia 谁的乌托邦
Cao Fei 曹斐
The God of Henan Rap 河南说唱之神
Zhang Fangzhao 张方钊
Factory 工厂
“I am not loving here, I was just born here.” 我没有热爱这里, 我只是出生在这个地方”
The Rap of China 中国新说唱
The Urban News 城市新闻
Fangcang hospital 方舱医院
Liu Shaohua 刘绍华
blood plasma economy 血浆经济

Chapter 3.1
“World-class Ecological Island” 国家级生态岛
Changxing Island 长兴岛
Hengsha Islands 横沙岛
Chongqi Bridge 崇启长江公路大桥
Qidong 启东市
Yingzhou 瀛洲 or 瀛州
Yingzhou in the East China Sea 东海瀛州
vast sea and farmland 苍海桑田
Dongtan wetland 东滩湿地
Yunyang County 云阳县
rivers 河
river bends 港
tides 潋
drainage 泯沟
Lou Ye 娄烨
Souzhou River 苏州河
Qingcaosha reservoir 青草沙水库
Changxing Island 长兴岛
MadeIn Art Museum 没顶美术馆
Lu Xinghua 陆兴华
Ho Rui An 何瑞安

Zhang Peicheng 张培成
Vast Sea Changing into Farmland —Chongming Polder 沧海桑田—崇明围垦
Li Xiaofei 李消非
“urban-rural integration degree” (chengxiang jiehedu) 城乡结合度

Chapter 3.2
Li people 黎族
Miao people 苗族
Deng Xiaoping 邓小平
independent Customs operation 封关
Wu Lien-Teh 伍连德
Zhang Zhidong 张之洞
Haikou 海口
Snya 三亚
Yulin Harbor 榆林港
Qiongzhou Strait 琼州海峡
International Development of China 实业计划
Huazhou 化州
Hai’an port 海安码头
T. V. Soong 宋子文
Soong Mei-ling 宋美龄
Qiong Prefecture 琼州
Guangxi 广西
Shilu Iron Ore Mine 石碌铁矿
Changjiang Li Autonomous County 昌江黎族自治区
Tentative Outline of Hainan Island Government Affairs 海南岛政务暂行处理刚要
Taihoku Imperial University’s Southern Studies 台湾帝国大学的南方研究
Wanning City 万宁市
Basuo Port 八所港
Dongfang city 东方市
Sanya’s Yulin harbor 榆林港
Shilu and Yulin 田独铁矿
Qiongzhou Strait Levee 琼州海峡大堤
Wu Wenguang 吴文光
Communist Rhapsody 共产主义畅想曲
Wu Keling 吴克灵
Yinge Sea 莺歌海
“Enriching the Island and Strengthening the Army” (fudao qiangbing)富岛强兵
Sansha 三沙
Chenxiangwan Reservoir 沉香湾水库
Xinglong Overseas Chinese Farm 兴隆华侨农场
Man Must Conquer Nature 人定胜天
Hainan State Farms Museum (Natural Rubber Museum) (海南农垦博物馆[天然橡胶博物馆])

hard work 艰苦奋斗
daring to fight and daring to win 敢于斗争、敢于胜利
“the first key to forge Hainan” 锻造海南的第一把钥匙
Songtao Spirit 松涛精神
people’s commune 人民公社
“One Hundred Thousand Talents Coming Down to Hainan” 十万人才下海南
sent-down youth 知青
The Coast of the South 南方的岸
Five Finger Mountains 五指山
“window” 窗口
“test field” 实验区
“vanguard” 先锋
Hainan Free Trade Port 海南自由贸易港建设总体方案
Hai Rui 海瑞
Feng Zicai 冯子材
“open up deserted mountains” 手辟荒山
“three-hour economic circle” 三小时经济圈
rear area base 战略大后方
“Fever of Real Estates Market” 房地产热
Evergrande Real Estate 恒大集团
Danzhou 儋州
Phoenix Island 凤凰岛
Coconut Fragrance Princess Cruise 椰香公主号
Changle Princess Cruise 长乐公主号
Nanhai Cruises 海南邮轮
“Enriching the Island and Strengthening the Army” 富岛强兵
“Paracuratorial on the Move Islands in the Re-Making” 运动中的泛策展之“岛屿再造时

Chapter 4
Jining district 集宁区
Lop Nor 罗布泊
Liupanshui 六盘水
Bainiaohe digital town (Bird River digital town, 白鸟河数字小镇
Huawei Cloud Town 华为云上屯
Ghost City 鬼城
Peach Blossom Spring Place 桃花源
Crow Cave 乌鸦洞
Great Learning 大学
“Things have their root and their branches. Affairs have their end and their beginning. To know what is first and what is last will lead near to what is taught in the *Great Learning*” 物有本末，事有终始，知所先后，则近道矣。
Qingshui military dependents’ village 清水眷村
Wang Xiaoshuai 王小帅.
Qinghong 青红

Eleven Flowers Wo shijyi 我 11
Red Amnesia Chuangruzhe 闯入者
saving the nation through aviation 航空救国
Peach Blossom Spring Place 世外桃源
Wind Fly commercial company 云发贸易公司
Mengdong Technology Company 梦动科技
Guizhou Forerunner College 贵州盛华职业学院
Wang Xuehong 王雪红
Chen Wenqi 陈文琦
Dushan County 独山县
Shui-style wooden building 司水楼
Yunnan-Guizhou-Sichuan New Wave 云贵川新浪潮
Bi Gan 毕赣
Kaili Blues 路边野餐
Kaili 凯里
Sky Eye (*Tianyan*) 天眼
big pot 大锅
Nan Huairen 南怀仁
Kedu town 克度镇
Dawondang 大窝凼
Pingtang country 平塘县
Light Year Away Hotel 光年之外酒店

Chapter 5
Shanzhai 山寨
"Community with a Shared Future for Mankind" 人类命运共同体
A Pile of Ghosts 一窟鬼
huaben 话本
ku 窟
Mogao Ku 莫高窟
Pinmin Ku 贫民窟
Tianducheng 天都城
The Swallows Hotel 燕子旅馆
"nail-house" 钉子户
滨江 Bin River
Bilibili 哔哩哔哩
Little Red Book 小红书
shi 尸
Little Sun 小太阳
Guo Fan 郭帆
Liu Cixin 刘慈欣
Universe Exploration Editorial Department 宇宙探索编辑部
Journey to the West 宇宙探索编辑部
Kong Dashan 孔大山

Tang Zhijun 唐志军
Sun Yitong 孙一通
qigong 气功
Qigong Fever 气功热
We Love Science 我们爱科学
The Journal of UFO Research 飞碟探索
The most popular UFO magazine in the world 全球发行量最大的 UFO 杂志
Yang Yongliang 杨泳梁
The Day of Perpetual Night 永恒之夜
The Three-Body Problem 三体
Jia Zhangke 贾樟柯
Unknown Pleasures 任逍遥
Still Life 三峡好人
Ash is Purest White 江湖儿女

Conclusion
"once-in-a-thousand-year flood" 千年一遇的洪灾
Great Production Campaign 大生产运动
Naniwan Spirit 南泥湾精神

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