

Environmental Policy on Ocean Flower Island: An Actor-Network Perspective

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Received: September 18, 2025 Accepted: October 10, 2025 Online Published: October 13, 2025

Abstract

Ocean Flower Island, as a landmark artificial tourism project in the context of Hainan Free Trade Port, has become a typical case of a “failed megaproject” due to the China Evergrande Group’s financial collapse and ecological controversies. This study, based on field research and interviews conducted in Danzhou, Hainan, adopts Actor-Network Theory (ANT) as an analytical framework, and explores the interactions among multiple actors in the practice of environmental policy on Ocean Flower Island. Actors range widely from government, developers, local residents, tourists, to non-human entities. The findings reveal gaps in policy implementation, tensions between local governance and central environmental objectives, and structural contradictions between economic development and environmental protection. This paper provides a case study of environmental governance and regional development in the Hainan Free Trade Port through the lens of ANT.

Keywords: Actor-Network Theory, Ocean Flower Island, environmental policy

1. Introduction

As China’s only Free Trade Port and a national pilot zone for ecological civilization, Hainan shoulders the dual policy objectives of economic development and ecological protection, as Liu suggests in his research on Hainan’s ecological policies (2023)[1]. Ocean Flower Island, an extensive land reclamation project initiated by the China Evergrande Group, was once positioned as a key component of the “International Tourism Island” strategy. However, with the China Evergrande Group’s debt crisis and controversies over environmental approvals, Ocean Flower Island has become emblematic of the conflicts between ecological governance and large-scale real estate development in China. According to the Ministry of Ecology and Environment, existing problems include large-scale destruction of coral reefs and white-lip shells caused by land reclamation, seawater stagnation due to embankment construction, suspected falsification of environmental impact assessments, and fragmented approval procedures that undermined ecological oversight (2017)[2].



Figure 1. Aerial view of Ocean Flower Island during construction

This paper employs Actor-Network Theory (ANT), which was first proposed by Bruno Latour, as the analytical framework, emphasizing networks co-constructed by both human and non-human actors (2005)[3]. From this perspective, policy documents, ecological environments, financial capital, local residents, as well as trash bins and coral reefs, are all actors whose interactions shape the practice of environmental governance on Ocean Flower Island. This kind of actor cluster formed by the aggregation of networks is essentially what Latour defines as the “collective” – a specific association and collection of humans and non-humans within a network at a particular moment and in a particular place, as discussed by Descola (2013)[4].

2. Literature Review

2.1 Theoretical Foundations

Actor-Network Theory (ANT) has emerged as a pivotal framework for deconstructing the complexity of socio-technical and human-nonhuman interactions, challenging traditional opposition between nature and society, humans and objects. Latour argues that social order is not a preordained structure but a network of heterogeneous actors that co-construct relationships through ongoing, contingent interactions (2005)[3]. The network is consisted of humans, technologies, ideologies, and natural entities. Unlike conventional sociological approaches that prioritize human agency, ANT posits that non-human actors, for example, coral reefs, policy documents and infrastructure, possess “agency” insofar as they mediate and shape network dynamics. This perspective has been widely adopted in environmental governance studies to reveal how ecological challenges are not merely “managed” by humans but emerge from the interplay of diverse actors within interconnected systems.

Leslie extends ANT’s utility to studies of consumption and environmental policy, emphasizing that relational dynamics in networks are not inherent but emergent. For Leslie, policies, markets, and natural resources gain meaning only through repeated interactions between actors. In the context of large-scale development projects, ANT avoids framing “environment vs. development” as a conflict. Instead, it focuses on how actors negotiate, align, or disconnect to produce governance outcomes (2009)[5].

2.2 Empirical Context

China’s rapid urbanization and coastal development have sparked a growing body of research on the tensions between economic growth, policy implementation, and ecological protection – particularly in pilot zones like Hainan, which bears dual mandates of economic openness and ecological civilization. Liu’s analysis of Hainan Free Trade Port (FTP) policies highlights a fundamental paradox: while the FTP prioritizes foreign investment and industrial expansion, national ecological civilization goals require strict coastal ecosystem preservation. According to Liu, this duality often leads to “policy hybridization,” where local governments dilute environmental standards to attract capital (2023)[1].

A core focus of research has been large-scale land reclamation and its ecological impacts. Yu, Zhang, and Zhou examine how land reclamation projects disrupt marine ecosystems through habitat fragmentation, seawater stagnation, and biodiversity loss, using Ocean Flower Island as a case study(2021)[6]. Their findings reveal that developers often exploit “fragmented approval procedures” to evade oversight. Environmental impact assessment (EIA) for projects like Ocean Flower Island are frequently “symbolic” rather than substantive, with developers manipulating data to downplay ecological risks – a failure attributed to weak regulatory enforcement and close ties between local governments and capital.

2.3 Gaps in Existing Research

While existing literature provides critical insights into policy-practice gaps, capital-ecology tensions, and governance fragmentation in Chinese coastal development, some gaps remain.

Firstly, most studies frame environmental governance as a conflict between different human actors while sidelining the agency of non-human entities. ANT’s emphasis on human-nonhuman co-construction offers a corrective, but few studies have applied this framework to Hainan’s coastal projects to explore how non-human actors (e.g., dying coral reefs, stagnant seawater) shape policy responses and public perceptions.

Secondly, as Liu mentioned, research on Hainan’s dual policy mandates (economic development vs. ecological protection) has focused on provincial or island-wide dynamics (2023)[1], but neglected project-specific negotiations between actors. Ocean Flower Island’s unique status as a private-sector-led project provides a rare opportunity to examine how capital withdrawal disrupts actor-networks and reshapes governance. Existing studies do not address how post-bankruptcy governance (e.g., government takeover, fragmented responsibility) reconfigures relationships between policy, residents, and ecosystems.

Thirdly, there is limited attention to local perceptions of ecological and economic trade-offs. While Liu (2023)[1] notes broad tensions between growth and conservation, few studies have documented how residents' experiences influence their engagement with environmental policy. ANT emphasizes that network stability depends on actor alignment, and understanding residents' roles as both beneficiaries and critics of projects like Ocean Flower Island is key to explaining governance outcomes.

2.4 Contribution of This Study

This study applies ANT to the environmental issue of the Ocean Flower Island, examining how human actors and non-human actors mutually construct environmental governance. By integrating fieldwork interviews, multi-perspective investigations, and policy analysis, this study centers non-human agency to reveal how ecological entities mediate policy implementation while simultaneously foregrounds local perceptions to bridge the divide between top-down policy and bottom-up practice. In doing so, it offers nuanced insights for reconciling Hainan's dual mandates of economic development and ecological civilization.

3. Methodology

This study employs a mixed-methods research design informed by ANT to analyze the dynamics of environmental governance on Hainan's Ocean Flower Island. The methodology integrates primary fieldwork and secondary document analysis to reveal the interplay between human actors and non-human actors. Primary information, including information from semi-structured interviews and participant observations, were collected during the fieldwork in Danzhou. Interviews were conducted with participants representing diverse stakeholders, ranging from government officials to local residents. Participant observation was conducted at key sites including the island's ecological restoration zones, Danzhou Exhibition Hall, and Dongpo Academy. Secondary data included provincial and national policy documents, official environmental inspection reports, and literature on coastal development and ANT. To ensure methodological rigor, triangulation was employed by cross-verifying interview data with policy documents and observation findings.

4. The Composition of the Actor-Network

4.1 Government and Policy Documents

In marine environments, Jobin et al. suggests that governments may simultaneously respond to public demands for ocean protection while permitting short-term economic activities, such as overfishing or land reclamation, that harm marine ecosystems (2021)[7]. In 2025, the Hainan provincial government issued the *Low-Carbon Island Construction Plan*, emphasizing renewable energy and direct green power supply (2025)[8]. However, its implementation on Ocean Flower Island has been limited. For example, the hotel manager at Ocean Flower Island mentioned that China Evergrande Group had promised an annual investment of 200 million yuan for environmental maintenance, but this commitment vanished after the company's bankruptcy. This rupture highlights the tension between policy objectives and capital constraints.

In 2025, the Hainan provincial government issued the *Low-Carbon Island Construction Plan*, emphasizing renewable energy and direct green power supply (2025)[8]. While the plan lays out a robust blueprint for the Hainan's sustainable development, its implementation on specific projects like Ocean Flower Island has encountered challenges. The China Evergrande Group once committed to investing 200 million yuan annually for environmental maintenance of Ocean Flower Island. Yet, due to the company's financial difficulties, its capacity to fulfill this commitment was greatly weakened. In practice, after the Evergrande Group faced troubles, the ecological conservation and low-carbon development work on Ocean Flower Island has been carried out under the guidance and supervision of the local government. Relevant departments have been promoting the application of low-carbon technologies outlined in the Hainan Low-Carbon Island Construction Plan on the island, such as exploring the use of high-efficiency solar cells for power supply and researching green hydrogen production for energy needs. This shows that while the provincial-level plan provides a clear low-carbon roadmap, the realization of these plans in specific scenarios is subject to the interaction of multiple factors including enterprise operation and government regulation.

4.2 Developers and Capital

As the dominant actor in the project's early stages, the Evergrande Group advanced large-scale land reclamation, hotel complexes, and amusement facilities. However, with the collapse of its financial chain, major projects were left unfinished, including the international shopping center and the Fantasy World Ocean Park, which was originally planned as the island's largest theme park. Following the withdrawal of capital, government takeover proceeded slowly, leaving the island with a superficial appearance of prosperity that masked underlying stagnation.

Simultaneously, the land reclamation process imposed severe ecological costs. The construction of embankment structures disrupted natural seawater circulation, leading to pollutant accumulation and widespread mortality of coral reefs and white-lip shells. Central environmental inspectors later flagged these developments, citing fragmented permit approvals and irreversible habitat damage. In response, Evergrande initiated limited rectification measures beginning in 2017. By 2022, key structures such as the No. 3 and No. 4 culvert bridges had been dismantled. An ecological restoration fund was also established, and coral reef rehabilitation initiatives were launched, including the deployment of reef substrate modules and coral seedling cultivation programs. Nevertheless, the procedural path through which the original damming design obtained approval remains opaque, raising persistent concerns over deficiencies in environmental oversight.

4.3 Residents and Local Perceptions

Local residents generally demonstrate weak awareness of ecological concepts. Instead, most people, for example, the interviewed sightseeing train ticket seller, focus on employment and income generated by Ocean Flower Island. Residents employed in the amusement park received above-average wages and benefits, reinforcing their support for development. However, some local people expressed dissatisfaction with ecological damage and governmental injustice, linking chemical plants and land reclamation to rising health problems such as cancer, as mentioned by local taxi drivers.



Figure 2. Living condition of local residents in Danzhou, Hainan

Beyond this apparent division, residents' perceptions reveal the ambivalence between livelihood security and ecological well-being. Younger workers tend to view the project as an opportunity for upward mobility, seeing Ocean Flower Island as a gateway to modern urban lifestyles and consumption. Older generations, especially those engaged in fishing or agriculture, are more likely to highlight the loss of biodiversity and the degradation of coastal ecosystems. In interviews, some villagers emphasized that mangroves and wetlands once served as natural barriers against typhoons, and their destruction has heightened vulnerability to extreme weather.

While official narratives emphasize prosperity and regional modernization, residents often interpret ecological inspections and demolition orders as selective or politically motivated. This perceived inconsistency fosters a sense of injustice. Economic opportunities are concentrated among project insiders, while ecological costs are borne collectively. Consequently, local discourse oscillates between pride in participating in a landmark development and anxiety for health, environmental risks, and future generations.

4.4 Non-Human Actors

In *How Forests Think*, Eduardo Kohn challenges anthropocentric assumptions about thought and meaning. He argues that not only humans think, but that all living beings think, and that all thoughts are themselves alive. This

perspective suggests that the nonhuman world is not a passive, meaningless backdrop awaiting human interpretation; rather, meanings emerge autonomously in a living world beyond the human (2013)[9]. A distinctive feature of ANT is the inclusion of non-human actors in analysis. Coral reefs around Ocean Flower Island suffered massive die-offs due to dams blocking seawater circulation, and their recovery has proven difficult even after the dams were removed. Trash bins overflowing with waste and lawns overrun with weeds also act as “voices” within the network, signaling poor management and resource inefficiencies during the tourist off-season.

4.5 Culture and Symbolism

The inscription “Fish and Birds Befriend Humans” at Dongpo Academy embodies the cultural tradition of harmony between humans and nature, serving as a symbolic resource for ecological policy. Such expressions reflect Chinese ecological philosophies, including Confucian notions of *tian ren he yi* (unity of heaven and humanity) and Daoist respect for natural order, which could inspire contemporary sustainability frameworks. Yet in practice, these cultural narratives are often diluted, functioning more as promotional symbols for tourism than as guiding principles for governance. For instance, while local authorities frequently reference cultural heritage in branding ecological projects, the policies implemented on the ground tend to prioritize economic returns over ecological balance. This gap between symbolic heritage and material practice illustrates how culture is mobilized selectively. Thus, while cultural symbolism holds the potential to reframe ecological governance through a deeply rooted cultural ethos, it risks devolving into ornamental rhetoric without concrete institutional support.

5. Discussion

5.1 Breakdown of Capital and Policy Implementation

After the China Evergrande Group’s withdrawal, although the government proposed ecological restoration plans, these lacked concrete mechanisms and funding. Without sufficient capital allocation, proposed actions like mangrove replanting, shoreline stabilization, and water quality monitoring remained on paper rather than being put into practice. Moreover, the fragmentation of responsibility across different administrative bodies created implementation gaps. Local governments were often more concerned with maintaining short-term economic stability than investing in costly long-term ecological programs. This reflects a broader structural problem in environmental governance: policy rhetoric is strong, but the lack of financial commitment and enforcement mechanisms undermines actual outcomes.

5.2 Tension between Development and Conservation

While most residents prioritized development, ecological degradation indirectly affected their health and quality of life. Some believed that the establishment of Ocean Flower Island would stimulate economic growth and thereby improve living standards of the locals. Others, however, emphasized the negative health impacts of large-scale constructions and industrial projects, arguing that the developer’s activities had seriously disrupted their daily lives. This divergence of views highlights the underlying conflict between short-term economic gains and long-term ecological well-being.

5.3 Fragmented Governance

Weak coordination among government, capital, residents, tourists, and non-human actors led to ruptures in governance. Local authorities often struggled to reconcile central environmental directives with the urgent need to stabilize economic development, while the withdrawal of the Evergrande Group’s capital left gaps in both funding and responsibility. Residents were divided between support for short-term employment opportunities and concerns over long-term ecological damage, further complicating collective action. Tourists, whose presence fluctuated seasonally, contributed to inconsistent resource use and management pressures. Non-human actors like dying coral reefs and deteriorating landscapes amplified these fractures by continuously “signaling” the failures of governance. While “green development goals” are on display in exhibition halls that symbolize Danzhou, the meaning of “green” remains undecipherable to local people. Taken together, these misalignments produced a fragmented network in which policy objectives were frequently symbolic rather than operational.

5.4 Roles and Limitations of Actor-Network Theory

Using the Actor-Network Theory framework, it becomes clear that environmental outcomes in Ocean Flower Island were not solely determined by government or developers. Human actors and non-human actors interacted in various ways. For instance, the removal of mangroves not only weakened coastal resilience but also accelerated soil erosion and biodiversity loss, which in turn intensified social tensions as fishing yields declined. Recognizing this interplay is crucial for developing integrated solutions that do not isolate ecological issues from their social and economic dimensions.

The distinction between "humans" and "non-humans" in previous studies prevents the goal of "decentering anthropocentrism" from being fully achieved, as it essentially still takes humans as the subject for classification. Future research can improve the classification of actors on the basis of Actor-Network Theory (ANT).

5.5 Implications for Future Policy and Research

The Ocean Flower Island case demonstrates the necessity of coupling ecological policy with enforceable funding mechanisms, environmental impact assessments, and meaningful public participation. Future research could focus on longitudinal monitoring of the affected ecosystems to provide evidence for restoration strategies, while policy-makers should explore incentive systems that align local development goals with ecological sustainability. Comparative studies with other coastal projects in China or abroad may also yield insights into governance models that balance economic growth with environmental protection.

6. Conclusion

The case of Ocean Flower Island demonstrates that environmental policy is not a unilateral directive from the government but rather the outcome of negotiations among diverse actors. In the absence of capital support and amid fragmented local governance, policy documents often serve as symbolic gestures rather than actionable practices. From an ANT perspective, future environmental governance in Hainan should take seriously the "agency" of non-human actors, strengthen institutional mechanisms for policy execution, and enhance ecological awareness among local residents.

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