

ARTICLES

Legal Challenges of Building Resilience for Informal Settlements in Developed, Democratic Contexts

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ABSTRACT

Rising sea levels, storm surges, inland and coastal flooding, and other climate-related risks are threatening human lives. These risks are intensified for informal settlers who live in environmentally fragile areas, lack secure legal tenure, and have limited access to public services. To date, most research regarding informal settlements under climate change has focused on those in what is commonly known as the developing world, where there are thousands of dwellers living in large-scale enclaves. Using an analysis of Shezidao, an unrecognized informal settlement in Taipei City, this paper argues that informal settlements exist in developed countries as well but that they are mostly ignored by their governments and underrepresented in the informal settlement scholarship. Few legal scholars have studied informal settlements in a developed and democratic context. This paper hopes to fill that gap in the legal scholarship. Given the extra-legal nature of informal settlements, this paper utilizes democratic principles and international human rights law to discuss the legal challenges surrounding informal settlements. It also proposes pathways to build resiliency not just for Shezidao, but also for the greater Taipei City. The same solutions that are recommended for Shezidao can be applied to the challenge of building resilience in informal settlements in other developed, democratic contexts.

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INTRODUCTION

As the threat of climate change has become ever more pressing, cities around the world have struggled to deal with people living in improvised housing—housing without clear title, located adjacent to eroding shorelines and shifting riverine areas, and accompanied by frequent flooding or heat waves.¹ These so-called “informal settlements” exist outside government-designated urban legal systems, lack secure legal tenure, and have inadequate or no public services such as safe water pipelines and connections to electricity grids.² The residents of these informal settlements—even residents of informal settlements within highly developed, relatively rich, and democratic states—are particularly vulnerable to weather changes brought on by climate change.

This article addresses those vulnerabilities and the various responses states might take to address them. More specifically, this article ultimately addresses two key questions that must be raised with regard to informal settlements in the

1. See Robert Kiunsi, *The Constraints on Climate Change Adaptation in a City with a Large Development Deficit: The Case of Dar es Salaam*, 25 ENV'T & URB. 321, 325–26 (2013).

2. See David Satterthwaite et al., *Building Resilience to Climate Change in Informal Settlements*, 2 ONE EARTH 143, 143 (2020).

era of climate change: How should a country decide whether to “upgrade in place” or resettle the inhabitants of an informal settlement, given its extra-legal nature? And, in the context of a highly democratized and developed country, what legal and policy tools are available to governments to build resiliency against the challenges of our changing climate, not just for informal settlements but also for the rest of their citizens and residents?

Whereas there are considerable variations among informal settlements around the world, prevalent features include insecure tenure, environmental vulnerability, and susceptibility to political manipulation. For many people, the term “informal settlement” presents an image of a large-scale slum in a less-developed country or perhaps in a country that lacks democracy and is ruled by an authoritarian regime.³ Most informal settlements recognized in scholarship are located in developing or underdeveloped countries in Asia, Africa, and Latin America. In India, for example, there are large-scale informal settlements in megacities such as Delhi and Mumbai.⁴ In the City of Dar es Salaam, Tanzania, eighty percent of the city’s population, amounting to more than 3.2 million people, live in informal settlements.⁵ In Cairo, Egypt, more than sixty percent of urban areas are informal.⁶ In Cali, the second largest city in Colombia, there are more than 25,000 informal settlements. This stereotype constrains not only the understanding of the general populace, but also that of scholars seeking reform.⁷ In fact, informal settlements exist in developed and democratic states, not only in underdeveloped or authoritarian ones.

There are two glaring gaps in current scholarship on informal settlements. First, current research on building resiliency under climate change for informal settlements has mostly focused on less developed countries and has overlooked developed countries. For instance, the *UN-Habitat Thematic Guide: Addressing the Most Vulnerable First: Pro-Poor Climate Action in Informal Settlements* focused on climate adaptation strategies for less developed countries.⁸ Satterthwaite’s research on *Building Resilience to Climate Change in Informal Settlements* focused on informal settlements in low- and middle-income countries.⁹ The underlying

3. Most research uses the terms *global north* and *global south*. This paper found these terms vague and inaccurate and therefore used the terms *developed* and *less developed* instead.

4. Francesco M. Gimelli, Briony C. Rogers & Joannette J. Bos, *The Quest for Water, Rights and Freedoms: Informal Urban Settlements in India*, 42 INT’L J. OF URB. AND REG’L RSCH 1080,1082 (2018).

5. Kiunsi, *supra* note 1, at 322.

6. Heba Allah Essam E. Khalil et al., *Could/should Improving the Urban Climate in Informal Areas of Fast-Growing Cities be an Integral Part of Upgrading Processes? Cairo Case*, 24 URB. CLIMATE 63, 65 (2018).

7. See Jean-Louis van Gelder, *Paradoxes of Urban Housing Informality in the Developing World*, 47 LAW & SOC’Y REV. 493 (2013); NEZAR ALSAYYAD & ANANYA ROY, URBAN INFORMALITY: TRANSNATIONAL PERSPECTIVES FROM THE MIDDLE EAST, LATIN AMERICA, AND SOUTH ASIA (2004).

8. DAVID DODMAN ET AL., ADDRESSING THE MOST VULNERABLE FIRST: PRO-POOR CLIMATE ACTION IN INFORMAL SETTLEMENTS (2018).

9. Satterthwaite et al., *supra* note 2.

presupposition of both studies is that informal settlements are more likely to exist in less developed countries. Although this paper agrees on the urgency of building resiliency for the informal settlements in these less developed nations, it argues that it will be valuable to look at the informal settlements in developed countries as well.

A second equally crucial gap in the relevant scholarship is the failure to consider the political regime—democratic or authoritarian—in which an informal settlement is located. A highly democratic country honors the rule of law and democracy, and therefore both property rights and governmental decision-making processes play significant roles in the state's response to informal settlements. An authoritarian government, by contrast, focuses on results and devotes less attention to democratic values and processes. In the context of informal settlements, the decision-making processes in democratic regimes involve multiple stakeholders including dwellers, landowners, developers, and local and central governments. These political dynamics must also be taken into consideration when planning for the future of informal settlements in democratic regimes.

This paper attempts to fill these gaps in the scholarship by examining state responses to the problems facing informal settlements in developed and democratic regimes, rather than authoritarian and undeveloped countries. It uses the case study of Shezidao, an informal settlement in the highly democratized and developed country of Taiwan, to illustrate the particular vulnerabilities of residents of such informal settlements to climate change, and the viability of different sorts of state responses to those vulnerabilities. Based on the case study, this article attempts to untangle the complicated issues of planning, land use and property regulations, central and local governance, and public participation in the decision-making processes which democratic governments might employ to address that vulnerability.

This article proceeds in three parts. Part I introduces common and context-dependent features of informal settlements throughout the world, with a particular focus on such settlements in developed and democratic regimes; it also explains how they are impacted by climate change. It then looks in some detail at how democratic and legalistic decision-making defines and sometimes constrains the response of states looking to mitigate the vulnerabilities of these residents. Part II details the Shezidao case study in Taiwan to present the unique challenges of an informal settlement in a developed and democratized context. Finally, Part III proposes strategies for the case of Shezidao and suggests useful tools that may be applicable to other similarly situated locales worldwide. I ultimately argue against the common belief that upgrading is the better choice to build resilience. Resettlement, I will argue, is sometimes the best approach in both developing and developed countries. Resettlement in developed, democratic countries is particularly complicated; in places where informality is interwoven with formal urban systems, relocation measures require more delicate consideration. As

illustrated in the Taiwanese case study, the complex and intertwined social and political context can be challenging for the local government.

I. BACKGROUND

Any discussion of informal settlements in developed countries must begin with a clear definition of “informal settlement.” There is no universal definition of this term.¹⁰ Even different sub-organizations within the United Nations define the term in different ways; nevertheless, the following two definitions provide a useful starting point. The United Nations in its Glossary of Environment Statistics defines informal settlements as “areas where groups of housing units have been constructed on land that the occupants have no legal claim to or occupy illegally” or “unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing).”¹¹ Another definition comes from the UN-Habitat III Issue Papers 22 titled *Informal Settlements*, which lists three elements of informal settlements:

[informal settlements] are residential areas where 1) inhabitants have no security of tenure vis-à-vis the land or dwellings they inhabit, with modalities ranging from squatting to informal rental housing; 2) neighborhoods usually lack, or are cut off from, basic services and city infrastructure; and 3) the housing may not comply with current planning and building regulations, and is often situated in geographically and environmentally hazardous areas. In some instances, informal settlements can be a form of real estate speculation for all income levels of urban residents, affluent and poor.¹²

These definitions both identify the lack of a legal claim to the land or house as a key distinct feature of informal settlements. It is important to note that although people typically associate informal settlements with the context of less developed countries, neither definition assumes that context.

10. See, e.g., Chandan Deuskar, *Clientelism and Planning in the Informal Settlements of Developing Democracies*, 34 J. PLAN. LITERATURE 395, 395–96 (2019) (“There is little scholarly consensus on a precise definition of “informality.”); WRI Ross Center for Sustainable Cities, *Urban Informality as a Way of Life - Eugenie Birch*, YOUTUBE (Dec. 17, 2017), <https://perma.cc/CF4X-5WHT> (describing “urban informal settlement as a ‘way of life’”); Alena Ledeneva, *Introduction: the Informal View of the World – Key Challenges and Main Findings of the Global Informality Project*, in GLOB. ENCYCLOPAEDIA OF INFORMALITY, VOLUME 1 1 (Alena Ledeneva et al. eds., 2018).

11. U.N. DEP’T FOR ECON. & SOC. INFO. & POL’Y ANALYSIS, STUDIES IN METHODS: GLOSSARY OF ENV’T STATISTICS, at 43, U.N. Doc. ST/ESA/STAT/SER.F/67, U.N. Sales No. 96.XVII.12 (1997).

12. U.N. Task Team on Habitat III, *Habitat III Issue Paper 22 Informal-Settlements*, U.N. CONFERENCE ON HOUS. AND SUSTAINABLE URB. DEV. 1 (2015), <https://perma.cc/8Z7B-LY58>. This definition is derived from several past UN documents including UN-Habitat (2003), *The Challenge of Slums*; UN-Habitat (2013), *The State of the World Cities Report 2012/13*.

A. KEY FEATURES OF INFORMAL SETTLEMENTS

Again, as stressed above, informal settlements thus defined can exist in both developed and less developed countries. However, current literature on informal settlements continues to focus primarily upon the global south.¹³ Informal settlements were first researched in Latin America in the 1970s and 1980s.¹⁴ “Urban informality”—urban-poor settlements and their associated economic plight—is the subject of two influential books: Sir Peter Hall and Ulrich Pfeiffer’s *Urban Future 21: A Global Agenda for 21st Century Cities* and Hernando de Soto’s *The Mystery of Capital*. Both books use the term “informality” for settlements within so-called “Third World” countries and former communist nations.¹⁵

There have been some exceptions. In the 2000s, scholars started to explore urban informality in less developed countries in South Asia and Africa. At the same time, a few scholars also started to look at informal settlements outside of less developed countries. In *Urban Informality: Toward an Epistemology of Planning*, Roy argues that urban informality is more than a mere land use issue, it is fundamentally an issue of distributive justice and that this “state of exception” of informality also exists in the U.S., a developed country.¹⁶ In U.S. discourse, informal settlers are often called squatters, referring mainly to settlements at the interface of urban and rural areas where metropolises are expanding to the peripheries of the city.¹⁷ Residents of these settlements mainly consist of laborers and immigrants seeking opportunities to work in the city. Roy found that Third World informality policies are in fact similar to U.S. poverty policy in both terms used and procedures implemented.¹⁸

Entering the 2010s, scholars began to recognize the similarities of informal settlements in both the developing and developed worlds. Sheppard et al., in *Informality, Poverty politics: A North-South Comparison*, compared San Francisco and Jakarta, both cities in which informal settlements exist. The authors conclude that even within different economic, political, and social contexts, informal settlements are being gradually squeezed out by market-driven

13. Christian G. Haid & Hanna Hilbrandt, *Urban Informality and the State: Geographical Translations and Conceptual Alliances*, 43 INT’L J. OF URB. AND REG’L RSCH 551, 551–52 (2019).

14. ALSAYYAD & ROY, *supra* note 7, at 1.

15. See PETER HALL & ULRICH PFEIFFER, *URBAN FUTURE 21: A GLOBAL AGENDA FOR TWENTY-FIRST CENTURY CITIES* (2000); HERNANDO DE SOTO, *THE MYSTERY OF CAPITAL: WHY CAPITALISM TRIUMPHS IN THE WEST AND FAILS EVERYWHERE ELSE* (2000). This paper prefers to use the more neutral term “less developed” countries instead of using “Third World” nations or “Global South.”

16. Ananya Roy, *Urban Informality: Toward an Epistemology of Planning*, 71 J. AM. PLAN. ASS’N 147, 147–48 (2005).

17. *Id.* at 149. According to Roy, urban informal settlements appear in two forms. One is squatters, and the other is often called *high-end informality*, which also exists at the periphery of a city, but its informality occurs in its illegal subdivisions with gated community elites who “enjoy premium infrastructures and guaranteed security of tenure.”

18. *Id.* at 151.

housing supply created for the middle class.¹⁹ In *Territories of Poverty: Rethinking North and South*, Ananya Roy further argues that the distinction between global south and global north states is unnecessary and unhelpful.²⁰

We can infer from the sparse existing scholarship two common features of all informal settlements, regardless of location. The first is the lack of security of tenure. Inhabitants of informal settlements do not enjoy legal title to the lands; rather, a de facto tenure is created through occupation. The settlers' tenure is not recognized or registered in any official records and thus remains unprotected by the government;²¹ settlers can be evicted at any time. As one example, many countries in Latin America implemented forced eviction policies in informal settlements, with nearly 150,000 informal settlers evicted between 2004 and 2006.²² The second common feature is the settlements' physical condition. Informal settlements are usually located on the periphery of urban areas. The houses or shelters built do not comply with the building codes that stipulate safety standards. Most of the houses are not built for permanent use and are makeshift and unstable.

19. Eric Sheppard et al., *World Class Aspirations, Urban Informality, and Poverty Politics: A North-South Comparison*, 52 *ANTIPODE* 393, 395, 404 (2020).

20. Ananya Roy, *The Aporias of Poverty*, in *TERRITORIES OF POVERTY: RETHINKING NORTH AND SOUTH* 1, 2–3 (Ananya Roy & Emma Shaw Crane eds., 2015). Although informal settlements share these two common features, Alterman and Calor point out that informality in the Global North is usually quite different from informality in the Global South in four ways: 1) informal housing rarely puts people in dangerous conditions, 2) the informal housing mostly occurs on the land owner's own land, 3) fewer large-scale evictions happen, and 4) informal housing amounts to mostly small violations such as noncompliant building structures. See Rachelle Alterman & Inês Calor, *Between Informal and Illegal in the Global North: Planning Law, Enforcement and Justifiable Noncompliance*, in *COMPARATIVE APPROACHES TO INFORMAL HOUSING AROUND THE GLOBE* 150–59 (Udo Grashoff ed., 2020). Similar arguments of the nuanced differences of types of informal housing in the Global North are made by Durst and Wegmann in their research of informal housing in the United States. They point out that little research has been done regarding informal settlements in developed countries like the United States. Durst and Wegmann then introduce three types of informality in the United States: non-compliant, non-enforced, or deregulated economic activities. It is important to note that this research focuses on both the “regulatory environment” of planning and land-use laws and their different degrees of noncompliance. See Noah J. Durst & Jake Wegmann, *Informal Housing in the United States*, 41 *INT'L J. OF URB. AND REG'L RSCH.* 282 (2017). These are assumptions that advanced-economic countries are also regulatory states and have mature rule of law in place, which this paper discusses in the next section.

21. EDÉSIO FERNANDES, *REGULARIZATION OF INFORMAL SETTLEMENTS IN LATIN AMERICA* 5 (2011), 2–3

22. *Id.* at 7. To address the issues of displacement, the “[r]ight to adequate housing” is enshrined in Article 11 (1) of the International Covenant on Economic, Social and Cultural Rights (“ICESCR”), which states that “[t]he States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions.” G.A. Res. 2200A (XXI), International Covenant on Economic, Social and Cultural Rights, art. 11 (Dec. 16, 1966). Also, Article 17 of the International Covenant on Civil and Political Rights (“ICCPR”) states that: “No one shall be subjected to arbitrary or unlawful interference with his privacy, family, home or correspondence, nor to unlawful attacks on his honor and reputation.” G.A. Res. 2200A (XXI) International Covenant on Civil and Political Rights, art. 17 (Dec. 16, 1966)

B. THE EXACERBATED VULNERABILITIES UNDER CLIMATE CHANGE

Whatever their economic or political context, informal settlements around the globe are threatened by a climate that is changing drastically as temperatures rise and sea-levels advance. The *IPCC Fifth Assessment Report* pointed out that urban climate-change-related risks include “rising sea levels and storm surges, heat stress, extreme precipitation, inland and coastal flooding, landslides, drought, increased aridity, water scarcity, and air pollution with widespread negative impacts on people (and their health, livelihoods, and assets) and on local and national economies and ecosystems.”²³ The report further emphasizes that “[t]hese risks are amplified for those who live in informal settlements and in hazardous areas and either lack essential infrastructure and services or where there is inadequate provision for adaptation.”²⁴ As already mentioned, the *UN-Habitat Thematic Guide: Addressing the Most Vulnerable First: Pro-Poor Climate Action in Informal Settlements* (“The Guide”), pointed out that there are three main factors that inherently make informal settlers even more vulnerable under climate change: physical location of the informal settlements, socio-economic characteristics of the residents, and the political and institutional marginalization of informal settlers.²⁵

The first factor is the physical location of the informal settlements. Informal settlements are usually at the outskirts of a city—typically an undesirable location from developers’ perspectives. These undesirable locations, including riverbanks, floodplains, coastal zones, and hill slopes, are mostly “environmentally-fragile.”²⁶ In addition to vulnerability to natural hazards, these undesirable locations also lack government resources in lifeline infrastructures such as access to hospitals and emergency shelters.²⁷

The second factor is the socio-economic characteristics of the residents. Residents who live in these places often lack economic capacity. Some are low-income immigrants working in illegal labor markets.²⁸ Moreover, because they are living in an informal settlement, they do not have an official address, which is often needed for opening a bank account or buying insurance.²⁹ These deficits make it hard for these residents to prepare for and react to climate-related disasters.

The third factor is the political and institutional marginalization of informal settlers.³⁰ Residents are politically marginalized because they “lack the political

23. Aromar Revi et al., *Urban Areas*, in *IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION AND VULNERABILITY. PART A: GLOBAL AND SECTORAL ASPECTS* 535, 538 (Christopher B. Field et al. eds., 2014).

24. *Id.*

25. DODMAN ET AL., *supra* note 8, at viii.

26. *Id.* at 3.

27. *Id.*

28. *Id.*

29. *Id.* at 9.

30. *Id.* at 3.

voice to influence planning decisions that satisfy their need.³¹ Because the settlements are not shown in the urban planning maps that are drawn by local governments, the government services and relevant administrative systems in these places are simply blocked. In other words, informal settlers do not have access to clean water, sewage treatment or electricity.³² Without basic public infrastructure, they are exposed to greater climate risks. For instance, when heat waves strike, these makeshift houses do not have good ventilation, let alone air conditioners.³³ Without protection such as sea walls and other flood control structures, these areas also suffer from repetitive flooding.³⁴

C. RESPONDING TO THE CHALLENGES OF INFORMAL SETTLEMENTS IN DEMOCRATIC CONTEXTS

Democracy is critical when discussing informal settlements because it ultimately affects government approaches to the issues involved. For example, when dealing with informal settlers, an authoritarian ruler or a strong-arm government can forcefully evict the dwellers and demolish houses either without any procedural safeguard required by law or simply disregarding existing laws, whereas democratic governments must go through a complex process and often several years of litigation before the government can even touch a house.³⁵ Despite that important distinctions, few scholars have examined informal settlements in democratic contexts.

Two key pillars are found in most democracies worldwide: the rule of law and the protection of human rights.³⁶ Both impact the way such states, as well as scholars, view informal settlements. The commitment to the rule of law impacts the discussion of informal settlements in democratic regimes in two ways; one is substantive, and the other is procedural. Substantively, rule of law regimes tend to have developed legal systems that in turn include bodies of law surrounding sound planning and land-use as well as developed systems of property rights. The “informality” of the informal settlement, in this context, implies a profound lack of legitimacy; thus, informal settlements in democratic states distinctively lack

31. *Id.* at 4.

32. *Id.* at 8.

33. *Id.* at viii.

34. *Id.*

35. For example, in 2020, in the Kibos community, an informal settlement in Kisumu, Kenya, the informal settlers were forcefully evicted even when there was a court order explicitly ordering the government to suspend the demolition and forced eviction. See Kipkoeh N. Cheruiyot, *Forced Evictions in Informal Settlements and the Role of the Courts in the Protection Socio-Economic Rights in Kenya: A Case-Study of Kibos Demolitions 2* (Jan 29, 2022) (unpublished comment) (on file with author).

36. See G.A. Res. 67/1, Declaration of the High-level Meeting of the General Assembly on the Rule of Law at the National and International Levels, at 2 (Sept. 19, 2012) (“We reaffirm that human rights, the rule of law and democracy are interlinked and mutually reinforcing and that they belong to the universal and indivisible core values and principles of the United Nations.”).

legitimacy. In countries with an established rule of law, informal settlements are often not compliant with existing planning laws. A squatter, for example, not only lacks tenure to land, but also disregards the planning and land-use laws in place—settlements are mostly built outside of the approved local government plans. There is also a fairly common type of non-compliance which often refers to high-end houses which are not built in conformity with certain land-use regulations or building code restrictions.³⁷

The second impact of the rule of law is procedural. Given urban planning's highly political character, rule of law societies tend to develop and abide by procedural rules. The procedural part of the rule of law is what has been addressed most often by the scholarship regarding informal settlements. Due process and meaningful public participation are crucial when considering the best strategies for informal settlers.³⁸ More local governments are now incorporating a certain degree of participation into the upgrading or relocation processes for their informal settlements. Moreover, the participation is not only limited to the informal residents, but also attempts to include the whole city or areas that might be affected to those upgrading or relocation plans.³⁹ Highlighting due process and public participation is even more important in the context of climate change. Each individual city or town has unique climatic and geographic problems about which only its residents can provide the most useful information for future planning strategies. Only through a participatory process can a sustainable urban plan be created.

In a society that honors the rule of law, no matter what form it takes, the determination of whether a certain settlement or community is informal or not is in the hands of the government. The government holds the power to enact laws and to stipulate land regulations to legalize properties.⁴⁰ As McFarlane and Waibel argue, it is the government officials' choice not to regularize a certain type of construction or to recognize a type of settlements as not following existing land use and planning laws.⁴¹ The result is that in democratic states, the governmental decision to designate a settlement as "informal" can itself be a highly political—and complex—process. Urban planning and land use laws in a democratic society are

37. See Alterman & Calor, *supra* note 20, at 156, 177.

38. See ANDREW MERRIFIELD, BASIL HOREN, & ROB TAYLOR, *THE POLITICS OF PUBLIC PARTICIPATION IN INFORMAL SETTLEMENT UPGRADING: A CASE STUDY OF BESTER'S CAMP* (2019); Salah Eddin Elzein Mohamed, *The Participation Of Informal Settlement Communities In City-Level Policy-Making Processes In Johannesburg* (2009) (Thesis for Doctor of Philosophy, University of the Witwatersrand); Hamid Mohammadi Makerani, *Citizen Participation in Informal Settlements: Potentials & Obstacles—The Case of Iran, Shiraz, Saadi Community*, 1 INT'L J. OF ARCHITECTURAL AND ENV'T ENG'G 36, 36 (2007); P. HORN ET AL., *SCALING PARTICIPATION IN INFORMAL SETTLEMENT UPGRADING: A DOCUMENTATION OF COMMUNITY MOBILISATION AND CONSULTATION PROCESSES IN THE MUKURU SPECIAL PLANNING AREA, NAIROBI, KENYA 2* (2020), <https://perma.cc/J9HR-9RA3>.

39. HORN ET AL., *supra* note 38 at 8.

40. See Roy, *supra* note 20, at 149–50.

41. Colin McFarlane & Michael Waibel, *Introduction: The Informal-formal Divide in Context*, in *URBAN INFORMALITIES 6–7* (eds. Colin McFarlane & Michael Waibel 2012).

complicated. There are often multiple stakeholders involved, each with conflicting interests.

Two common challenges complicate planning and land use decisions in democratic contexts: clientelism and capitalism. “Clientelism” is the process and set of relationships by which politicians help the urban poor in exchange for votes.⁴² These political relationships in most cases support the existence of informal settlements, particularly in a developing democracy.⁴³ Only through these political relationships can the urban poor in informal settlements access resources and public services such as running water, electrical connections, and other services. Politicians allow informal settlers to live in a better environment while still reinforcing the informality and lack of tenure security to settlers’ homes.⁴⁴ This is also an informal form of political participation which involves asymmetrical political relationships in fully democratized countries.

In addition to clientelism, however, the more fundamental problem weighing on informal settlements is capitalism itself. In a capitalistic society, land is highly valued, particularly in major metropolitan areas, which is where informal settlers usually dwell.⁴⁵ Thus, as the value of land rises, many dwellers simply cannot afford housing close to the cities where they are employed, and local governments do not provide enough affordable housing for these people. As a result, informal settlements inevitably arise in the periphery of the urban areas. Land becomes more than just a place to build houses; it is more about making an investment and a commodity. Some have called this phenomenon the financialization of housing.⁴⁶ Therefore, in a capitalistic society, securing housing rights of all citizens is critical, as the paper below discusses.

As noted above, a second key pillar in most democracies is a respect for human rights. This too impacts the state’s response to informal settlements. Two rights are most relevant. One is the right to adequate housing, which is enshrined in Article 11(1) of the United Nations International Covenant on Economic, Social and Cultural Rights (“ICESCR”), which states “[t]he States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions.”⁴⁷ The right to adequate housing requires governments to provide their people at least the following: security of

42. Deuskar, *supra* note 10, at 395.

43. *Id.* Again, on the issue of clientelism most research focuses on the “global south” countries.

44. Clientelism can come in many different forms. There are mainly two types of patronage democracies: one is party-centered, and the other is community-centered. Depending on the context, either type comes to an end result of clientelism. Ward Berenschot & Edward Aspinall, *How Clientelism Varies: Comparing Patronage Democracies*, 27 DEMOCRATIZATION 1, 3 (2020).

45. See Alterman & Calor, *supra* note 20, at 168.

46. *The Human Right to Adequate Housing*, OFF. OF THE U.N. HIGH COMM’R FOR HUM. RTS., <https://perma.cc/C6RY-8Q6M> (last visited Aug 5, 2022).

47. G.A. Res. 2200A (XXI), International Covenant on Economic, Social and Cultural Rights 4 (Dec. 16, 1966).

tenure; availability of services, facilities, and infrastructure; affordability; habitability; accessibility; location; and cultural adequacy.⁴⁸ It is worth highlighting that the key feature of informal settlements—insecure tenure—should be protected under the right to adequate housing. Although it is a widely recognized international human right, in reality, the situation of homelessness and housing insecurity are still on the rise in both developed and developing countries.⁴⁹ Cities around the world are trying to honor this right by providing social housing and rent control; in the inevitable eviction scenario, governments must ensure that the displacement processes follows the 2008 Basic Principles and Guidelines on Development-based Evictions and Displacement.⁵⁰ However, this is by no means an easy fix to this dilemma; it is an ongoing challenge, such that the United Nations has mandated Special Rapporteurs on adequate housing since 2000, continue to work on this issue.⁵¹

The second right is the right to property. This right was first recognized in Article 17 of the Universal Declaration of Human Rights, which states: “(1) Everyone has the right to own property alone as well as in association with others. (2) No one shall be arbitrarily deprived of his or her property.” However, this right is not recognized in the International Covenant on Civil and Political Rights (“ICCPR”) or ICESCR. Despite the lack of recognition in these later covenants, most democratic countries with rule of law in place have a sound property law system to protect peoples’ property rights.

The right to adequate housing and the right to property can often conflict, and they routinely do so when informal settlements appear in entrenched democracies. When informal settlements occupy private landowners’ land, landowners cannot simply demolish the informal housing without trampling on the settlers’ rights to adequate housing.⁵² What if landowners and informal settlers live side-by-side along the coastline or on a peninsula? In this case, should land use regulations be consistent regardless of whether they are applied to landowners or informal settlers? These two groups of people may have distinctly different vulnerabilities connected to the land, especially under the threat of climate change. Whose rights should the government protect? This is exactly the challenge that the Shezidao case study illustrates.

48. Off. of the U.N. High Comm’r for Hum. Rts., *The Right to Adequate Housing*, Fact Sheet No. 21/Rev.1, 3–4 (2009).

49. Rep. of the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, and on the Right to Non-Discrimination in this Context, 5, U.N. Doc. A/HRC/34/51 (2017).

50. Miloon Kothari, Report of the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, annex I, U.N. Doc. A/HRC/4/18 (Feb. 5, 2007).

51. *About the Mandate*, OFF. OF THE U.N. HIGH COMMISSIONER FOR HUM. RTS, <https://perma.cc/873G-Y2LL>, (last visited Aug 5, 2022).

52. In some democracies, the concept of adverse possession may be applied to protect the informal settlements. See Shivani Danielle Jacelon, *Adverse possession & the right to housing: a rights based approach*, OPENGLOBALRIGHTS (Feb. 9, 2021), <https://perma.cc/ES2K-WCKJ>.

II. A CASE STUDY IN SHEZIDAO, TAIWAN

The informal settlement in Shezidao illustrates a number of the challenges facing other such settlements in democratic regimes. Rather than a large-scale informal settlement in a less developed and authoritarian country, it is a small-scale informal settlement in a developed and highly democratized country. Shezidao exhibits all the features of informality that have made these communities vulnerable, particularly under climate change.

Shezidao is a floodplain located at the confluence of two main rivers, the Keelung River and the Tamsui River (see [Figure 1](#) Map of Shezidao). There are approximately 11,000 people living there on a peninsula,⁵³ which has gradually grown out of a sand bar.⁵⁴ There are two villages in Shezidao: Fu'an Village and Fuzhou Village.⁵⁵ The low-lying area, with an average elevation of only 2.5 meters, is particularly vulnerable to sea-level rise.⁵⁶ Notwithstanding its natural vulnerability, most property owners and developers have requested that the government approve a high-density urban plan in Shezidao.⁵⁷ However, such high-density development requires reinforced flood control infrastructure, which in turn will negatively affect the greater Taipei City area as explained below.



FIGURE 1: Map of Shezidao (source: *The Livable Future of Shezidao*, Charles Lin, Deputy Mayor of Taipei City, 30 April 2016).

In the past, the Taipei City Government considered only low-density development urban plans for Shezidao, which were unpopular with developers. To date, the City Government, under great political pressure, has in fact failed to stipulate

53. *Renkou ji huji tongji* (人口及戶籍統計) [*Population and Household Statistics*], MINGRISHEZIDAO (明日社子島) (Oct. 7, 2022), <https://perma.cc/RK3U-HATH>.

54. Ju-Ching Huang, *Redevelopment or Retreat for Informal Settlers? A Case Study in Shezidao, Taipei, Taiwan*, 11 J. ENV'T STUD. & SCI. 404, 406 (2021).

55. *Id.*

56. *Id.* at 408.

57. *Id.* at 406.

any urban plan, and thus Shezidao has remained outside the city's urban planning system. The resulting informality has kept living costs low and attracted marginalized communities to move to and remain on these private lands, and an informal settlement has gradually formed through the years.⁵⁸ Now, as climate change progresses, Shezidao likely needs more than just an urban plan.

The complexity of Shezidao's historical context and its political dynamics have attracted the attention of many scholars. One body of scholarship is focused on the public administration problems in Shezidao. Scholars have discussed how various stakeholders, from dwellers, to landowners, to developers, interact with each other and who should decide the future of Shezidao.⁵⁹ Another group of scholars has focused on the cultural and historical context of Shezidao.⁶⁰ Yet another group has focused on the technical and environmental science aspects of Shezidao, for instance urban planning and flood control engineering.⁶¹ Thus far, however, no scholarship has recognized or examined the informality of Shezidao and how its living conditions can be worsened under climate change. Below, this paper discusses how Shezidao fits the features of an informal settlement and demonstrates the challenges informal settlements face under climate change.

58. See Xing-Zhu Peng, *Shenru Shezidao, Jie kaibu yuanmian duidezhen xiang* (深入社子島, 揭開不願面對的真相) [*Unraveling the Inconvenient Truth of Shezidao*], *YUANJIAN ZAZHI* (遠見雜誌) [GLOBAL VIEWS MONTHLY] (Aug. 31, 2020), <https://perma.cc/Y9R3-CHE4>.

59. See Meng-Kwen Chen, *A Study of Shezidao Development Project in Taipei City: Perspective of Complex Adaptive System*, 58 *THINKING & SPEECH: J. OF HUMANITIES & SOCIAL SCI.* 105 (2020); Hung-Ta Chen (陳竝達), *Jhengfu fujih zuo guansi jih yanjiou – yi Taibei shih Shezhidao Kai Faanweili* (政府府際合作關係之研究—以臺北市社子島開發案為例) [*The Relations of Intergovernmental Cooperation in Taiwan: the Development of Shezidao in Taipei City*] (2011) (Master of Arts Thesis, Chinese Culture University) (on file with National Digital Library of Theses and Dissertation in Taiwan); Chia-Lin Ma (馬嘉凌), *Meiyu Cyuan li de Cyuanli Shezhidao Jyumin de Shehui Kongjian Siangsiang* (沒有權力的權力: 社子島居民的社會空間想像與建構) [*Powerless Power: The Social-Spatial Imagination and Construction of the Shezidao's Resident*] (2007) (Master Thesis, Soochow University) (on file with National Digital Library of Theses and Dissertation in Taiwan); Mei-Hua Hsieh (謝梅華), *Dushih Jhengcyuan, Gueihua jhengjih, yu Shih minyishih de Mengfa: Shezhidao kaifaan de Siangsiang yu Jhenshih* (都市政權、規劃政治與市民意識的萌發: 社子島開發案的想像與真實) [*Urban Regime, Planning Politics, and the Emergence of Citizen Consciousness: The Imagination and Reality of Development for Shezidao*] (2008) (Master Thesis, Shih Hsin University) (on file with National Digital Library of Theses and Dissertation in Taiwan).

60. See Jun-wein Wang (王志文), *Shezidao Renwunjyuluo jih biancian* (社子島人文聚落之變遷) [*The Change of Shezidao Human Settlement*] (1999) (Master Thesis, Chinese Culture University) (on file with National Digital Library of Theses and Dissertation in Taiwan).

61. See Chen I-Chun (陳怡君), *Jianjhuliangti peijih duei Dushih Kaifangkongjian Fonghuanjing yingsiang jih yanjiou – yi Taibeishih Shezidao Gueihua Weili* (建築量體配置對都市開放空間風環境影響之研究—以台北市社子島規劃為例) [*The study of Building Mass Layout on the Effects of Urban Open Space to the Wind Environment —A Case Study of Shezidao*] (January, 2012) (Master Thesis, National Taipei University of Technology) (on file with Author); Ke-Chin Chih (遲克勤), *Dushih Paishuei Sitongsheji jih Jianhong celyue yanjiou ~ yi Shezhidao weili* (都市排水系統設計之減洪策略研究~以社子島為例) [*A Study Of Urban Flood Mitigation Strategy Based On Drainage System Design: An Example in Shezidao*] (2010) (Master Thesis, University of Taipei) (on file with author); Nan-Hung Liu (劉南宏), *Shachang gongfa yingyong yu hean baohu jih tantao – yi Shezhidao Hean Weili* (砂腸工法應用於河岸保護之探討-以社子島頭河岸為例) [*Application of Geotextile Tubes in Riverbank Protection—A Case Study in Shezidao Area*] (2014) (Master Thesis, National Taiwan Ocean University) (on file with National Digital Library of Theses and Dissertation in Taiwan).

A. THE INFORMALITY IN SHEZIDAO

Because few have examined the communities on Shezidao through the lens of informal settlements, this paper first investigates whether they fit the definition of informality. This paper concludes they do, for two reasons: first, Shezidao does not have an urban plan in place, and second, most dwellers do not have clear legal ownership of their houses or the land they dwell on.

1. Long-Pending Urban Plan

Although Shezidao is within the jurisdiction of Taipei City and many versions of an urban plan have been proposed, no effective urban plan has been stipulated. According to Taiwan's Urban Planning Law (UPL), each city must stipulate an urban plan to ensure reasonable land use including a master plan and a detailed plan.⁶² The master plan also includes a master plan map.⁶³ The detailed plan includes residential density and population, land use control measures and zoning, and other detailed planning specifications.⁶⁴ It also comes with a detailed plan map.⁶⁵

Taiwan's urban planning system is highly centralized. All cities' master plans must proceed through a two-level process. First, the city's Urban Planning Review Committee reviews the plan.⁶⁶ Once the plan is approved, it must be reviewed by a national-level Urban Planning Review Committee at the Ministry of the Interior.⁶⁷ Each district within a city can submit its district master plan separately. Unlike master plans, detailed plans do not have to be approved by the central government.⁶⁸

The lack of an urban plan for Shezidao is intertwined with flood control policy. On July 4, 1970, the Taipei City Government announced the "Yangmingshan Administrative Bureau Shilin and Beitou District Master Plan" (1970 Master Plan).⁶⁹ This plan explicitly designated Shezidao as a "development restricted zone." It noted that if there was no flood control plan created for Shezidao, there should be no detailed urban plan. Without a detailed plan, according to Article 17 (2) of the Urban Plan Law, no construction or terrain changes were allowed in the

62. A master plan must include information such as local ecological, social, and economic conditions; the administrative area and the scope to be covered by the plan; population growth, spread, and composition; the distribution of land used for residential, commercial, industrial, and other purposes; the main roads and other public transportation systems; the main water supply and drainage systems; and the urban plan development budgets. DUSHI JIHUA FA (都市計畫法) [URBAN PLANNING LAW] §§15 and 22 (Taiwan).

63. *Id.*

64. *Id.* §22.

65. *Id.*

66. *Id.* §18.

67. *Id.* §20.

68. *Id.* §23.

69. TAIPEI CITY GOV'T, YANGMINGSHAN GUANLIJUXIAQU ZHUYAOJIHUA AN (陽明山管理局轄區主要計劃案) [YANGMINGSHAN ADMINISTRATIVE BUREAU SHILIN AND BEITOU DISTRICT MASTER PLAN] (1970).

area.⁷⁰ In other words, nothing constructed could be registered for a title and no land-owners could claim property rights in the houses they built. Unregistered dwellers could not receive public services such as water, gas and electricity.⁷¹ A vicious cycle therefore began. Lack of public services eventually led to poor living quality.

The 1970 Master Plan was not an arbitrary decision made solely by the city government; it was based on a report written by the Water Resources Agency, under the Ministry of Economic Affairs (MEA).⁷² Given Shezidao's low economic value, it was subsequently deemed not worth the money for the government to build the levee and to protect the Shezidao area.⁷³ This report sent a clear message that the central government did not want to invest in public flood control structures for Shezidao. Meanwhile, the rest of Taipei City was undergoing a long-term, well-organized plan called the "Taipei Area Flood Control Plan," aiming to protect the city from one-in-200-year floods.⁷⁴ The bottom-line logic behind the decision was to use Shezidao as a floodplain, thus protecting the rest of the city.

In the 1980s, despite development restrictions, the population continued to grow on the sandbar. As Taipei was one of the fastest growing Asian cities, people were flocking there to seek job opportunities. Without clear building rules, Shezidao became an ideal place to live as an interim plan. The Taipei City government therefore was striving to approve both a flood control plan and a feasible urban plan for the growing settlement, and these plans would need approval from the central government. The Executive Yuan, which is the Taiwanese government's highest executive authority, repeatedly rejected proposals from the City government, but eventually reluctantly approved a "Shezidao levee building protection plan" to build a six-meter low-protection levee in 1987.⁷⁵ This 6-meter structure can only protect against a one-in-20-year-flood. At the time, most places in Taipei were protected by nine-meter or higher levees that can protect against a one-in-100- or 200-year-flood. MEA once again emphasized that the Taipei City government should not request a higher levee in the future. Instead, MEA clearly stated that Shezidao was to be placed under population control and strict land-use control⁷⁶ (see [Figure 2 Taipei Area Flood Management Plan Map](#)).

70. DUSHI JIHUA FA (都市計畫法) [URBAN PLANNING LAW] § 17(2) (Taiwan).

71. JIANZHUFU (建築法) [Building Act] §73 "Without a usage license, the building is prohibited from access to and usage of water and power" (Taiwan).

72. TAIPEI CITY GOV'T, BIAN GENGTAI BEI SHIHSHIH LINSHEZHIDAODI CYUJHU YAOJI HUAAN (變更臺北市士林社子島地區主要計畫案) [TAIPEI CITY SHILIN DISTRICT SHEZIDAO AREA MASTER PLAN] 1 (2018).

73. *Id.* This cost-benefit analysis is a common practice in U.S. flood management and many scholars have discovered its negative impacts on social vulnerability. See e.g., Kelly McGee, *A Place Worth Protecting: Rethinking Cost-Benefit Analysis Under FEMA's Flood-Mitigation Programs*, 88 UNIV. CHI. L.R. 1925 (2021).

74. TAIPEI CITY GOV'T, TAIBEIDIQU SHEZIDAODIQU JI WUGUDIQU FANHONGJIHUA XIUZHENG BAOGAO (臺北地區(社子島地區及五股地區)防洪計畫修正報告) [TAIPEI AREA (SHEZIDAO AREA AND WUGU AREA) FLOOD MANAGEMENT PLAN AMENDMENT REPORT] 4 (2019).

75. *Id.* at 2–6.

76. *Id.*

One wrong decision led to another. The approval of the levee plan only justified more development. After the levee construction was completed, and since 1989, city mayors over multiple terms have proposed various versions of a master plan, only to have the plan rejected by Shezidao dwellers.⁷⁷ Stakeholders, including landowners, homeowners (those who do not own the land), and renters, held meetings with the city government strongly opposing the low-density development plan. The homeowners in particular, mainly the informal settlers, also had great concerns about the approach of redeveloping the area through eminent domain. The first concern was that low-density development could not satisfy the investment expectations of the landowners. The second was that as a result of such redevelopment, most of the original dwellers would not be able to afford the new houses in Shezidao.⁷⁸ The corresponding detailed plan was therefore paused due to the strong opposition from the residents, and the vicious cycle continued.



資料來源：經濟部「臺北地區（社子島地區及五股地區）防洪計畫修正」，民國99年。

圖 2-1 臺北地區防洪計畫實施範圍圖

FIGURE 2 Taipei Area Flood Management Plan Map (Source: Taipei City Government Flood Management Plan)

77. TAIPEI CITY GOV'T, NIDING TAIBEISHI SHILIN SHEZIDAO DIQU XIBUJHUA AN (擬定臺北市士林社子島地區細部計畫案) [TAIPEI SHILIN SHEZIDAO DETAIL PLAN] 3-5 (2020).

78. Many reporters have covered the voices of the opposed dwellers, for instance, Tang Zuoxin (唐佐欣), *Those Who Oppose the Development of Shezi Island*, THE REPORTER, <https://perma.cc/VXK4-GQ9E> (last visited Oct 22, 2022).

Currently, many roads in Shezidao are still unnamed and lack road signage. Few public services can be found in the area. While approximately 80% of households in Taipei City have a sewage pipeline link, there are zero households with sewage links in Shezidao.⁷⁹ Many buildings do not have their own water or gas pipelines, and most lack lawful connections to electricity grids. Moreover, because most construction is technically not permitted, the houses are built with low-quality material and corrugated roofs. All these descriptions fit within the definitions of informal settlements as detailed above.⁸⁰

2. Lack of Clear Legal Tenure

The second feature of informal settlements is lack of tenure or clear legal ownership of land. This feature is also evident in Shezidao. According to a recent news report, more than 90% of Shezidao's households are illegal in some aspect.⁸¹ More than 1,000 households are situated on land without clear legal title.⁸² Many occupants own their houses but occupy others' private lands. The unregistered houses have no address.

As in other informal settlements around the world, it is difficult to determine the exact number of Shezidao dwellings with illegal land tenure.⁸³ Through a household in-person survey, it was determined that around 44.7% of Shezidao's low-income households are illegal; that is, they were registered before July 4, 1970. This survey is not of high confidence, however, as only 2,047 out of 4,258 households (48.0%) participated.⁸⁴ Among these 2,047 households, approximately 22.3% do not own the house they live in, and 32.1% of households do not own the underlying land on which their home is located.⁸⁵

79. Peng, *supra* note 58.

80. Recognizing the problems of the informal settlement, in 1996, the Taipei City government stipulated a regulation that relaxed construction standards specifically for Shezidao, prior to the urban plan being approved. See TAIPEI CITY GOV'T, TAIBEISHIH GUANDU, JHOUMEI, SHEZHIDAO DENG CHANGCI JINSIANJIAN DICU (臺北市關渡、洲美、社子島等長期禁限建地區本府規劃開發前違建暫行查報作業原則) [PRINCIPLES FOR PRE-PLANNING CONSTRUCTION VIOLATIONS IN GUANDU, ZHOUMEI, SHEZHIDAO AND OTHER LONG-TERM RESTRICTED DEVELOPMENT ZONES] (1996). This policy didn't solve the problems of people who live in high-risk zones, but only exacerbated them. People were allowed to stay in place, without a sense of urgency that the place may not be safe for living. Meanwhile, communities urged the approval of even higher density development. The mayor, regardless of how vulnerable the natural condition is, in order to satisfy their constituents, could only keep offering unrealistic development on paper.

81. Peng, *supra* note 58.

82. *Id.*

83. Peng, *supra* note 58. See FERNANDES, *supra* note 21, at 13 (describing the challenge of accurately quantifying informality).

84. TAIPEI CITY GOV'T, TAI BEI SHISHI LINQUSHEZIDAODI QUKAI FAJI HUADIERJIE DUAN TITLE (臺北市士林區社子島地區開發計畫—第二階段環境影響評估: 家戶訪查作業報告書) [TAIPEI CITY SHILIN DISTRICT SHEZHIDAO AREA DEVELOPMENT—SECOND PHASE ENVIRONMENTAL IMPACT ASSESSMENT: HOUSEHOLD INTERVIEW REPORT] 19 (Jun. 14, 2018), <https://perma.cc/4TAQ-5BRB>.

85. *Id.* at 22.

According to Article 40 of the Taiwanese Housing Act, the minimum living area for a household with more than six people is 6.88 square meters.⁸⁶ The living space per household in Shezidao is not quite half of this minimum area. Many houses in Shezidao expand as the number of family members grows;⁸⁷ therefore, many households have to share addresses. In other words, it is common to have more than one household in a “home.” Basic housing features such as showers, toilets, and kitchens are usually not sufficient and must be shared among many family members.

The land use and land ownership situation in Shezidao may be best understood anecdotally. Shezidao is a typical rural society, where people have close relationships with their neighbors. In the early days, when land was valueless, idle farmland meant that relatives, friends, and neighbors could build houses for free and occupy the sites indefinitely.⁸⁸ Wherever there was vacant land, anyone could build a home. Over time, as families grew, the number of inhabitants and inheritors increased to dozens or even hundreds. Disputes over land and housing property rights became difficult to resolve. In many cases, people did not even know the precise location, size, or character of property rights left by their ancestors. For instance, eighty-year-old grandmother Chen lives in Lane 107, Section 7 of Yanping North Road. The land belonged to her husband’s aunt. Before this aunt died, she had allowed Chen’s husband and uncle to build on the land. The aunt passed away two years ago; her sons and daughters refused to recognize the deal that the aunt had made with Chen and came to reclaim the land.⁸⁹

In another case, a woman in her sixties known as Aunt Xie only knows that her mother-in-law began to occupy the house she now lives in many years ago; she doesn’t know the identity of the house’s owner. Someone used to come collect NTD10,000 as rent each year, but, four years ago, that person, presumably the landlord, stopped coming. Aunt Xie thought that perhaps the land had been sold to investors. She also believes that the family house may have been built on her uncle’s land. Again, the house and the land appear to have been owned by different people, with current ownership in doubt.⁹⁰

In other situations, people who were under the impression that they had lawfully purchased the land could not obtain a legal title for it. Mr. Huang, a seventy-year-old man, believed his father had bought fifty square meters of land from a relative next door. However, the relatives later said that Huang’s father did not have the legal title himself, and that the land had been mortgaged to his debtor.

86. Construction and Planning Agency, Ministry of the Interior, *Taiwan Basic Living Standard*, MINISTRY OF THE INTERIOR (2018), <https://perma.cc/Q8BY-Z7GB>.

87. *Id.* at 462–463.

88. Peng, *supra* note 58.

89. *Id.*

90. *Id.*

Without owning the title, the relatives then resold it to the Huang family, clouding the title for the current occupant.⁹¹

In a more extreme case, Mr. Chen's ancestors came from mainland China to settle in Shezidao during the Japanese Colonization era (1895-1945), borrowing land from the big landlord on the 9th section of Yanping North Road in Taipei to build a quadrangle courtyard.⁹² In 1975, this was converted into a two-story apartment. Since then, floors have gradually been added as the household grew from one to six families. Now, it has become the largest five-story apartment in Shezidao.⁹³ Currently, each floor houses a family, and there are more than ten people from three generations sharing the space.⁹⁴ Because there is only one address with a house number, it is impossible to apply for separate water and electricity hookups.⁹⁵ Therefore, the six households share a single account. What makes the problem worse is that the family does not own the underlying land; even when they offered twice the market price, the landlord would not sell it.⁹⁶

The insecure legal tenure of these Shezidao residents is frustrating and has been a challenging issue for every Taipei City mayor who has tried to make changes in Shezidao. The tension between landowners and dwellers intensifies every time a new development is proposed by the Taipei City Government.⁹⁷ Landowners like the big landlord who lends land to the Chen family hope the land will be redeveloped so their land becomes a valuable asset, whereas dwellers like the Huang family, the Chen family, and many others hope to maintain the status quo—the status of insecure tenure.

The two features of informality are legal barriers that need to be removed in order to make Shezidao resilient. The first barrier regards urban planning, and the second regards the sorting out of property rights among private owners and occupiers.

B. THREATS OF INFORMALITY UNDER CLIMATE CHANGE

With these two features of informality in mind, the paper now examines how these features are impacted by climate change. As mentioned in Part II.B., there are three factors of informality that can cause a particular threat to informal settlers, all of which apply to the dwellers on Shezidao: physical condition, socio-

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.*

95. *Id.*

96. *Id.*

97. To further confuse matters, in Shezidao, an agricultural society, all subdivisions reference the irrigation system. As the land passed down to descendants, the parcels became smaller and thinner in order to retain irrigation access. *Id.*

economic characteristics of the residents, and political dynamics and institutional marginalization.

1. Physical Condition

Shezidao, as a floodplain, is physically vulnerable to natural disasters. Its average elevation is 2.5 meters.⁹⁸ In 1963, when Typhoon Gloria struck Taipei, Shezidao was severely flooded to a depth of three meters. On top of this disastrous situation, floodwater was discharged without warning from the upstream Shihmen Reservoir, which led to Shezidao being flooded for another three days, resulting in 224 deaths.⁹⁹ Even after the six-meter levees were built, according to the Environmental Impact Assessment Report (EIA) done in 2020, Shezidao experienced floods caused by intense rainfall thirty-four times between 1991 and 2020.¹⁰⁰ Each time the water was between 10 centimeters and 120 centimeters deep.¹⁰¹ Looking ahead, Flood Potential Maps, with rainfall simulation of up to 130 millimeters per hour, indicate that several parts of the sandbar will be flooded at least one meter.¹⁰²

People's lack of awareness about flooding can be hazardous. Research was conducted in 2020 on the "relationship between risk communication of government flood governance and citizen's risk perception" in Shezidao.¹⁰³ Through a survey of local residents, the study found that on a scale of 1 to 7, the question "Are you worried that there will be a flood in the future?" scored 4.77.¹⁰⁴ In other words, people are moderately worried about potential floods. According to the study, there are basically three reasons for this lack of serious worry.¹⁰⁵ One reason is that many residents believe that the six-meter levee they have right now may be sufficient.¹⁰⁶ The second reason is that there are some stormwater

98. Taipei City Gov't, *Dilioujhang hua jing siankuang kaifa singwei keneng yingsiang jhuyao ji cihyao fanwei ji gejhong siangguan ji hua* (第六章 環境現況、開發行為可能影響之主要及次要範圍及各種相關計畫) [*The Current Environmental Condition and the Potential Impacts of the Primary and Secondary Development Plans*], in TAIPEI CITY GOV'T, TAIBEISHIH SHIHLINCYU SHEZHIDAO DICU KAIFAJI HUA HUANJING YINGSIANG PINGGU BAOGAOSHU (臺北市士林區社子島地區開發計畫環境影響評估報告書) [TAIPEI CITY SHILIN DISTRICT SHEZIDAO AREA DEVELOPMENT ENVIRONMENTAL IMPACT ASSESSMENT REPORT] TAIPEI CITY SHILIN DISTRICT SHEZIDAO AREA DEVELOPMENT ENVIRONMENTAL IMPACT ASSESSMENT REPORT 6-45 (2020).

99. Shi Shu-Ling, *Minguo 52 nian geyueli taifeng zaihai yu taiwan sheng zhengfu jiuza* (民國52年葛樂禮颱風災害與台灣省政府救災) [*1963 Typhoon Gloria Disaster and Province of Taiwan Disaster Relief*], GUO SHI GUAN TAI WAN WEN XIAN GUAN (國史館臺灣文獻館) (2010), <https://perma.cc/54Z4-FQG5>.

100. Taipei City Gov't, *supra* note 98 at 6-53.

101. *Id.* at 6-54.

102. *3D Disaster Potential Map*, NATIONAL SCIENCE AND TECHNOLOGY CENTER FOR DISASTER REDUCTION, <https://perma.cc/YDW6-B364> (last visited May 11, 2021).

103. See Chun-Che Lo, *The Research on the Relationship between Risk Communication of Government Flood Governance and Citizen's Risk Perception—A Case Study of Shezidao in Taipei* [*in Chinese*] (2020), <https://perma.cc/VY2H-YZZ6>.

104. *Id.* at 46.

105. *Id.* at 5.

106. *Id.* at 63.

management systems in place.¹⁰⁷ Currently, there are five water pumping stations in Shezidao (see Figure 3).¹⁰⁸ The third is that most dwellers who have been through floods in the past have either elevated their houses or built self-made waterproof gates.¹⁰⁹

Thus far, the severe impact of climate change has not been thoroughly analyzed in Shezidao. All governmental reports have mentioned the key phrase, “climate change,” but none of them have conducted careful scientific simulation and evaluation as to how climate change might impact Shezidao. These reports only claim that the measures in a new plan—which include elevating the land by filling more soil (but not elevating the houses), building a central park with a pond, installing three more water pumping stations, building a 9.65-meter levee, and requiring further setbacks from the riverine—can sufficiently keep the area safe.¹¹⁰ This paper argues that the City Government needs to collect more data regarding climate change and its specific impacts to Shezidao and must not assume that the flooding issue can be solved completely with reinforced flood control systems such as water pumping stations and levees alone.

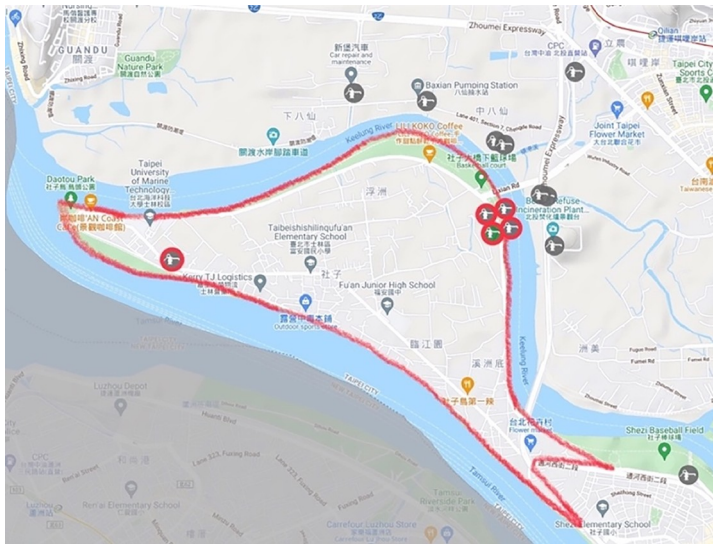


FIGURE 3 This picture shows the location of water pumping stations (the five circled in red edited by the author) in Shezidao (delineated in red) as well as multiple pumping stations across the Keelung River.

107. *Id.* at 63.

108. *Shuiqing Zixun* (水情資訊) [*Water Information*], Taibeishi Dihua Zixun Zhanshixitong (台北市地圖化資訊展示系統) [Taipei City Map Information System], <https://perma.cc/3JFX-NVKZ> (last visited Nov. 23, 2022).

109. Lo, *supra* note 103, at 5.

110. TAIPEI CITY GOV'T, *supra* note 74, at 3-3.

In addition to flooding, extreme heat is another issue that should be considered. As this paper illustrated above, informal housing itself is problematic. Many of these informal dwellings are not well ventilated and have corrugated roofs, and in these conditions, heat waves can cause great harm to people's health. Heat waves in the past have caused great death tolls and hospitalizations. They can also affect people's mental health and well-being.¹¹¹ In the past hundred years, the average temperature in Taiwan has increased 1.6 degrees Celsius (34.88 degrees Fahrenheit).¹¹² Although the City Government might argue that through redevelopment, new buildings can be well ventilated and will no longer use corrugated roofs, increasing the population density might not be an optimal choice for combating heat and high temperatures. In addition, with high temperature and high density of population, the communities will also be under the risk of dengue fever, a correlated climate-sensitive vector-borne disease that is pervasive in Taiwan.¹¹³ According to the 2021 Environmental Impact Assessment Report, Shezidao's Fuzhou Village is particularly vulnerable to dengue fever.¹¹⁴

2. Socio-Economic Characteristics of the Residents

As mentioned above, socio-economic disadvantages of informal settlers are one of the main factors leading to further vulnerability from climate change. This paper examines Shezidao's socio-economic characteristics and how its vulnerability can further worsen residents' living conditions if the government takes no actions to combat these issues.

Because no public infrastructure, such as roads and sewers, have been built in Shezidao, and because the building of dwellings has not been permitted either, young people and wealthy families have relocated elsewhere to environments that offered better living conditions. The elderly and those on low- to middle-low-incomes have remained in the high-risk flood zones of Shezidao. Extremely low rental prices are attractive to poor people and immigrant workers, who have stayed in the area.

Regardless of the poor quality of life in Shezidao, the overall population has not decreased. Between 1996 (11,153) and 2020 (11,265), the population remained relatively stable at around 0.43% of that of Taipei City.¹¹⁵ Currently,

111. Guéladio Cissé et al., *Health, Wellbeing and the Changing Structure of Communities*, in CLIMATE CHANGE 2022: IMPACTS, ADAPTATION AND VULNERABILITY. CONTRIBUTION OF WORKING GROUP II TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 1041, 1045 (H.-O. Pörtner et al., eds.) (2022).

112. *Qihoubianqian yingxiang* (氣候變遷影響) [*Climate Change Influence*], TAIWAN QIHOUBIANQIAN TIAOSHIPINGTAI (台灣氣候變遷調適平台) [TAIWAN ADAPTATION PLATFORM], <https://perma.cc/MP7U-9J5U> (last visited Nov. 22, 2022).

113. Taipei City Gov't *supra* note 98 at 6-1, 6-265.

114. *Shezidao's Development Plan and Interdisciplinary Workshop [in Chinese]*, ENV'TL INFORMATION CENTER (Jan. 18, 2017), <https://perma.cc/B2SF-ZJCD>.

115. *Population and Household Statistics*, *supra* note 53.

the population density is around 3,783 people per square kilometer.¹¹⁶ According to statistics from the last quarter of 2021, low-income people composed around 5.7% of the total population in Shezidao.¹¹⁷ Although it might sound insignificant, this is notably higher than the overall low-income population in Taipei City, which is 1.77%.¹¹⁸ The percentage of low-income population in Shezidao might actually be higher than this statistic shows because Shezidao is again undergoing a redevelopment plan and more investors have bought and tagged their names to the land.

Until 2016, the chief economic activity in the region was agricultural. 58% of Shezidao—around 170 acres of farmland—was used for agricultural activity, including growing vegetables and bananas for supply to local markets.¹¹⁹ There was also some manufacturing, located mainly in the southwest and northeast areas. Nevertheless, out of 286 factories, only four factories were registered, and therefore, legal. These factories were mainly operating in traditional industries, including metals, printing, and food.¹²⁰

A “Shezidao Minority Community Interview” conducted in July 2016 grouped the property rights and housing situation of low-income households (196 households in total) into four categories; they are referred to herein as types A, B, C, and D to facilitate discussion (see Table 1).¹²¹

TABLE 1:
CATEGORIES OF PROPERTY RIGHTS AND HOUSING SITUATIONS

	Own houses	Do not own houses
Own land	Type A	Type C
Do not own land	Type B	Type D

(Source: Author)

116. TAIPEI CITY GOV'T, *supra* note 72, at 19.

117. *Shezidao Zhongdishouruhu Tongji* (社子島中、低收入戶統計) [*Statistics of Shezidao's Middle- and Low-Income Households*], MINGRISHEZIDAO (明日社子島), <https://perma.cc/Y7EU-XJ2U> (last visited Feb 9, 2022).

118. *Taibeishi Dishouruhu renkoushu* (臺北市低收入戶人口數) [*Taipei City Gov't Low-Income Populations*], ZHENGFU ZILIAO KAIFANG PINGTAI (政府資料開放平臺), <https://data.gov.tw/dataset/133227> (last visited Feb 9, 2022).

119. TAIPEI CITY GOV'T, *supra* note 72, at 20.

120. *Id.*

121. *Shezidaodi quruo shizu qunfang tanzuo yecheng guo* (社子島地區弱勢族群訪談作業成果) [*Shezidao Area Minority Communities Interview Report*], MINGRISHEZIDAO (明日社子島) (2016), <https://perma.cc/F2NT-K2H7>.

Type A refers to those households that own both the land and the houses they inhabit. Type B refers to those households that only own the houses they inhabit, but do not have the land rights. Type C refers to the rare situation in which those who own the land do not own the house. Type D refers to those who own neither the land nor the house they live in. The truly complicated problem is low-income households that fall within Type D, where no land or home is owned; they make up approximately 41% of all low-income households in Shezidao.

TABLE 2:
NUMBER OF HOUSEHOLDS BY CATEGORY TYPE

Category	Number of Households	Percentage of all low-income households in Shezidao
Type A	40	25.97 %
Type B	39	25.32 %
Type C	7	4.55 %
Type D	63	40.91 %
Unanswered	5	3.25%
Total	154	100.00%

(Source: The report, 2016, July-December.)¹²²

Middle- and low-income households without secure land or housing and people working in agriculture and illegal manufactories are not uncommon in Shezidao; these socio-economic characteristics make residents even more vulnerable to climate change. Poverty makes it hard for residents to improve their living condition; the insecure tenure makes relocation from high-risk flood zones an added challenge, because these people do not have legal property rights in the first place. Moreover, because agriculture is highly sensitive to extreme weather,¹²³ most residents who are farmers are dependent on the environment. It may be difficult for farmers to resettle if climate change affects Shezidao drastically, making it unbearable to live there.

122. *Id.*

123. Rachel Bezner Kerr et al., *Food Fibre and Other Ecosystem Products*, in CLIMATE CHANGE 2022: IMPACTS, ADAPTATION AND VULNERABILITY. CONTRIBUTION OF WORKING GROUP II TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 713, 734 (H.-O. Pörtner et al., eds.) (2022).

3. Political Dynamics and Institutional Marginalization

The features of informality have put Shezidao in an institutionally marginalized situation, which is disastrous for an informal settlement. It is worth noting that unlike informal settlements in developing countries which are often politically *marginalized*, with their voices disregarded by the government, in the case of Shezidao, it is the political *dynamics* among different politicians supported by various interest groups that stall the advancement of Shezidao taking any precautionary measures under the threat of climate change. In addition to its public service and infrastructure insufficiency, Shezidao continues to be a controversial hot spot for both central and local governments.¹²⁴ There are no aligned policies toward these communities, and the conflicting objectives between the central government and local government have worsened the capacity of Shezidao to build climate resiliency.¹²⁵ The prolonged process of approving a governmental plan to combat climate change caused by the complex political dynamics is increasing the communities' vulnerability.

Conflicting governmental objectives have resulted in an awkward position. The central government is aiming to protect the larger area of Taipei City by using Shezidao as a floodplain. The local government, instead of moving people out of Shezidao, created a plan for building levees and additional pumping stations.¹²⁶ Taipei City then started to design an urban plan that could suit the development needs of Shezidao. Neither level of government has been willing to state explicitly that Shezidao is not adequate for human habitation.

Due to its features of informality, Shezidao has long been used for political leverage. Since the late 1980s, after Taiwan democratized, thirteen Taipei mayors have brought up the challenges faced in Shezidao and pledged to make changes.¹²⁷ What might be different from the situation of informal settlements elsewhere in the world is that each mayor did in fact devote efforts to making changes.

However, the problems in Shezidao are exceedingly complicated. Property owners are seeking more development rights, while informal dwellers are hoping to maintain the status quo and asking the government to provide public services. Naturally, each group is supported by disparate politicians and interest groups. The higher the tension is between property owners and informal dwellers, the

124. Ju-Ching Huang, *Redevelopment or Retreat for Informal Settlers? A Case Study in Shezidao, Taipei, Taiwan*, 11 J. ENV'T STUD. & SCI. 404, 408 (2021).

125. See *id.* at 408–10 for suggestions of ways that local and central governments can align public objectives.

126. See *Shezidaochoushuizhanguan lizhong xinzhou bianhe anhuan jinggai shangong cheng* (耐子島抽水站管理中心周邊河岸環境改善工程) [*Shezidao Plumbing Management Center and the Surrounding Riverbank Environmental Improvement Construction*], DEPT. OF LAND ADMIN., TAIPEI CITY GOV'T (MAR. 15, 2019), <https://perma.cc/9EKW-ZACX>.

127. Peng, *supra* note 58.

longer it takes and harder it is to reach common ground on how to use the land in a resilient way.

Moreover, given its pivotal geographic position, any change in Shezidao requires scrutiny and many levels of review and approval. Not only must groups on both sides come to an agreement, but redevelopment projects must pass through at least four sets of review by governmental expert committees: a two-tier Urban Planning Review Committee under both the Taipei City Government and the Ministry of the Interior, the Land Eminent Domain Review Committee under the Ministry of the Interior, the Water Resource Review Committee under the Ministry of the Economic Affairs, and the Environmental Impact Assessment Review Committee under Taipei City Government.¹²⁸ Given its cultural richness, some areas and architecture must also pass the Cultural Heritage Preservation Review under Taipei City Government rules.¹²⁹

The most recent redevelopment plan might be the closest to breaking through the stalemate. The incumbent mayor, Mayor Ko, an independent politician, promised to remedy the entangled past of Shezidao when he was first elected in 2015. Mayor Ko continued what was left by his predecessor, Mayor Hao—another massive development plan requiring construction of a 9.65-meter levee and elevating the sand bar to 8.15 meters. This plan had been voted down in 2014 by the city's Environmental Impact Assessment Committee due to its destructive effect on the floodplain.¹³⁰

Mayor Ko and his team offered four options to the dwellers: “Ecological Shezidao,” “Canal Shezidao,” “Our Shezidao,” or a “No Development” option.¹³¹ In 2016, 5,091 residents out of an approximate total of 14,478 Shezidao residents voted using an “i-voting” system through which residents could vote online.¹³² The majority of voters supported the “Ecological Shezidao” plan (with 3,032 votes, or 59.56%), which became the final plan later approved by the Ministry of the Interior.¹³³ The “Ecological Shezidao” plan is a revised version of a previous plan.

The new plan maintains the same development pattern of the past forty years, primarily focusing on increasing development density and using zone expropriation

128. See the flow chart on the Shezidao webpage. Taipei City Gov't, *jihua tuidongzonglan* (計畫推動總覽) [Shezidao Project Overview], MINGRISHEZIDAO, <https://perma.cc/D38Q-WH4Q> (last visited Oct 22, 2022).

129. See *Explanation on the Current Situation of the Promotion of Cultural Resources Preservation in Shezidao Area*, TAIPEI CITY GOV'T (June 15, 2022), <https://perma.cc/DU82-3PQ7>.

130. TAIPEI CITY GOV'T, *supra* note 77, at 4.

131. TAIPEI CITY GOV'T, *supra* note 72, at 2.

132. The vote was done through a newly established online polling system called “i-voting.” See Taipei City Gov't, *Shezidao Kaifa Fangxiang i-Voting* (社子島開發方向*i-Voting*) [The Future Development for Shezidao], TAIPEI I-VOTING, <https://perma.cc/Q6VK-RLDM> (last visited Feb 10, 2022).

133. *Id.*

to take land from private owners. However, Mayor Ko took a middle ground on the development density, while keeping the design pattern the same. The new plan involves building 9.65-meter-high embankments, which is the same height as the embankments in other areas of Taipei City.¹³⁴ Because Shezidao used to be a floodplain and is adjacent to several important central government-designated wetlands, these embankments are bound to change waterways when flooding occurs and thus likely to put the rest of the Taipei area in danger.

The new master plan was approved in June 2018 by the Urban Planning Review Committee of the Ministry of the Interior.¹³⁵ The corresponding Flood Control Plan was approved by the Executive Yuan in December 2019, and the detailed plan was approved in April 2020. Even though the compromised version of the development plan seemed to satisfy both sides—the people who want development and those who would like to maintain the status quo—the new plan has faced considerable negative criticism from experts, residents, and non-governmental organizations alike.¹³⁶ All have great concerns about the environmentally destructive nature of the plan. After an extensive, drawn-out debate, as Mayor Ko would be finishing his second term in December 2022, the case was finally approved by the EIA Committee in February 2022.

Upon reviewing Shezidao's past development, there is no doubt that political dynamics and institutional marginalization are critical factors that make any future planning challenging. However, as climate change is occurring, with sea level rising and extreme weather hitting the area, lives are at stake. Whereas the rich and politicians can pick and choose and have the luxury moving to a safer place, those left behind are vulnerable to climate change. Although the newly passed plan is a breakthrough for a plan that has been stalled for the past forty years, it still entails serious problems as it is a reinforcement of “stay-in-place” plan, which requires cautious reexamination to the flood-proof measures that will be applied including the elevation of the land, building sea walls, and the greater effects to the surrounding Taipei Metropolitan areas.

134. TAIPEI CITY GOV'T, *supra* note 72, at 5.

135. *Id.*; TAIPEI CITY GOV'T, TAIBEIDIQU SHEZIDAODIQU JI WUGUDIQU FANHONGJIHUA XIUZHENG BAOGAO (臺北地區(社子島地區及五股地區)防洪計畫修正報告) [TAIPEI AREA (SHEZIDAO AREA AND WUGU AREA) FLOOD MANAGEMENT PLAN AMENDMENT REPORT] (2019); TAIPEI CITY GOV'T, NIDING TAIBEISHI SHILIN SHEZIDAO DIQU XIBUIHUA AN (擬定臺北市士林社子島地區細部計畫案) [TAIPEI SHILIN SHEZIDAO DETAIL PLAN] (2020).

136. Hong-Yi Guo, *Shezidao Anzhi Tingzheng Ziwoganjue Lianghao de Taibeishi* (社子島安置聽證, 自我感覺良好的台北市府) [*Taipei City Government Congratulates Itself on the Shezidao Resettlement Hearing*], MING REN TANG (鳴人堂) (Apr. 15, 2019), <https://perma.cc/PH64-HTTW>; Kuei-Hsien Liao, *Shezidao Wenti Buneng Shewang Yong Jiaminzu de i-Voting Jiejue* (社子島問題不能奢望用假民主的 i-Voting 解決) [*The Problem of Shezidao Can't be Solved Through i-Voting, A Fake Democratic Solution*], MING REN TANG (鳴人堂) (Feb. 02, 2016), <https://perma.cc/4TXN-Q8TB>.

III. DISCUSSION

The case study of Shezidao shows that building resiliency for the future of an informal settlement in a developed and democratic country is a great challenge. Here, I argue that developed states must first recognize informal settlements; I then discuss the solutions of upgrading in place and resettlement and suggest that resettlement might be the better strategy for Shezidao. I also identify useful tools that may be applicable to other similarly situated locales worldwide.

A. RECOGNIZING INFORMAL SETTLEMENTS IN THE DEVELOPED WORLD

Recognizing a community's informality is crucial to protecting its people from climate-related hazards. When a government officially recognizes the existence of the informality, that government is better positioned to explore feasible strategies for resilience. Currently, the Taiwanese government has not recognized Shezidao as an informal settlement. Informal settlements are typically politically unwelcome, and in Shezidao, the high percentage of privately-owned land has made the situation particularly complicated. Thus far, no one has dared to use the term "informal settlement" with regard to Shezidao. The people of Shezidao think of themselves as second-class citizens within Taipei City, and recognizing Shezidao as an informal settlement might be seen as a negative move that reinforces this perception. However, doing so is important in order to allow the government to move toward an appropriate solution.

There are several benefits to recognizing informal settlements in developed countries facing climate change. First, recognizing the existence of these informal settlements and marking them on urban planning maps is necessary for the purpose of building resiliency for all citizens. It is the prerequisite of preparing informal settlements for extreme weather events. In Taiwan, climate change adaptation strategies only address settlements that are on the urban plan maps. Informal settlements are invisible on the urban planning map and thus not taken into consideration by the government. The second benefit of recognizing informal settlements is that it opens the opportunity for governments to learn successful stories of building resiliency from informal settlements around the world. As mentioned above, most informal settlement studies are conducted in less developed countries, and yet those features of informality and vulnerabilities under climate change are almost identical to those in the developed world. The third benefit of recognizing informal settlements is that it can help provide legal protections for informal settlers, as discussed above.

In addition to the three benefits outlined, it is important to recognize potential downsides to recognizing informal settlements. Some might argue that recognizing informalities is similar to labeling a certain group and may lead to discrimination against those who live in the place. Moreover, when taking this approach, the government will likely encounter backlash, particularly from landowners and developers because the land price will inevitably drop under capitalism. To prevent this

potential backlash, it is important for the government to communicate the benefits of recognizing the informal settlement in advance to reduce the sense of ambushing the settlers.

B. STRATEGIES FOR BUILDING RESILIENCY: UPGRADING OR RESETTLEMENT

Given the heightened vulnerability climate change imposes on informal settlements, the IPCC, along with many scholars, have been looking for methods to alleviate the risks. Two strategies are discussed below.

1. Upgrading

Upgrading is the most common governmental practice used to improve the living conditions of informal settlements, and it has been used since long before the era of climate change.¹³⁷ There are many different levels of upgrading; the two ends of the spectrum are rudimentary upgrading and comprehensive upgrading. Examples of rudimentary upgrading include basic improvements such as installing community taps and public toilets.¹³⁸ One way to implement this level of upgrading is to request the landowner or homeowner of the property on which the informal settlements rests to upgrade and reinforce the structures according to existing building safety standards, and then to connect those homes and businesses to public infrastructure.¹³⁹ Some governments also subsidize upgrading projects and even build affordable housing on the original sites for those being evicted throughout the upgrading process.¹⁴⁰ However, rudimentary upgrading does little to help in building resiliency.¹⁴¹

In the case of comprehensive upgrading, the government does more than improve physical infrastructure; it links land tenure legalization—sometimes called “regularization” or “formalization”—with socio-spatial policies, such as public services, urban planning, and other related policies. Under this approach, the government commonly tries to sort out the legal ownership or tenure to housing and land.¹⁴² The formalization process includes three stages: (1) collection of information on the land and on existing obstacles to formalization of settlements; (2) identification, demarcation, and registration of plots and buildings; and (3) identification of entitled occupiers. The government then gives title to the

137. Satterthwaite et al., *supra* note 2, at 148.

138. *Id.*

139. *Id.* at 147.

140. *Id.*

141. *Id.* at 148.

142. Satterthwaite et al., include displacement as one form of upgrading which this paper does not include. See Satterthwaite et al., *supra* note 2, at 148. The author believes that upgrading means improving the environment as a whole and not just the physical condition of the built environment and that if settlers are not included in the upgrading scheme, the original purpose of upgrading is lost.

informal settlers. This approach has been the dominant approach in the past few decades in Latin America, producing mixed results.¹⁴³

In an ideal situation, a well-planned upgrading project may build resiliency significantly in the face of climate change. Re-blocking an urban area may allow more open space to cool down the heat, and modernized buildings may also reduce energy consumption.¹⁴⁴ These benefits can only be achieved by taking a comprehensive upgrading approach.

In developed countries, climate-related risks and vulnerabilities in informal settlements are not being discussed broadly, but they are, in fact, being dealt with to some degree worth noting. For instance, in the United States, the Federal Emergency Management Agency announced in October 2021 that to increase equity for those in underserved communities under extreme weather conditions, the government is allowing disaster survivors to receive individual federal assistance even if they do not have traditional deeds to land or housing ownership verification.¹⁴⁵

Despite its potential benefits, regularization is not a panacea; it can have unanticipated consequences, such as political manipulation of regularization policies and greater concerns surrounding gentrification. As mentioned earlier, the design of planning and land use laws in a democratic society is highly political because clientelism and capitalism come into play. Regarding clientelism, one common scenario includes politicians using regularization policies as vehicles for “titles for votes” schemes.¹⁴⁶ Regarding capitalism, in centrally located and high-value areas, developers may pressure the legalized property owners to sell their lands.¹⁴⁷ This situation has been seen in Sao Paulo, where traditional communities have been converted from informal settlements to middle- and upper-class developments. In Vidigal, a well-located favela in Rio de Janeiro, a developer is buying parcels in informal markets, speculating that these places will be legalized in the future.¹⁴⁸ Moreover, in some of these areas, even after regularization, public infrastructure and services are not yet in place, and environmental conditions remain in degradation.¹⁴⁹ From a governance point of view, legalizing some

143. FERNANDES, *supra* note 21, at 27. Peru, Hernando de Soto’s home country, initiated large-scale titling programs in 1996, and nearly 1,600,000 freehold titles were distributed in Peru between 1996 and 2006. *Id.*

144. Satterthwaite et al., *supra* note 2, at 152.

145. *FEMA Makes Changes to Individual Assistance Policies to Advance Equity for Disaster Survivors*, FEMA (Sept. 2, 2021), <https://perma.cc/6RDF-LSC8>.

146. FERNANDES, *supra* note 21, at 36.

147. Alain Durand-Lasserve & Harris Selod, *The Formalization of Urban Land Tenure in Developing Countries*, in *URBAN LAND MARKETS: IMPROVING LAND MANAGEMENT FOR SUCCESSFUL URBANIZATION* 101, 124 (Somik V. Lall et al. eds., 2009).

148. FERNANDES, *supra* note 21, at 36.

149. *See id.*

parcels of land may raise costs when the government later wants to acquire other land nearby for future upgrading processes.¹⁵⁰

In addition, the process of titling and legalization are both time-consuming and costly; the process involves governmental planning and, in some cases, requires compensation to the landowners whose lands were occupied.¹⁵¹ Through empirical research done by Payne et al., another limitation has become apparent: formalizing titles does not have a significant impact on access to formal credit sources.¹⁵² In fact, employment status has more influence on the settlers' ability to access credit.

Despite these critiques of upgrading, most research supports building resiliency either through rudimentary or comprehensive upgrading for informal settlements. According to the IPCC Third Assessment, one recommended approach would be to "regularize property rights for informal settlement and other measures to allow low-income groups to buy, rent, or build good quality housing on safe sites."¹⁵³ In the IPCC Fifth Assessment (Working Group II), research focuses on improving housing conditions and upgrading public infrastructure to reduce the risk and vulnerability of extreme weather events.¹⁵⁴

In short, the goal of upgrading for resiliency is to allow people to stay in place even after a disaster strikes. The comprehensive upgrading approach goes a step further by providing inhabitants legal titles. However, these "keep-people-in-place" strategies may not always work under climate change. For instance, flood risks cannot be reduced through upgrading programs because flood management requires region-wide solutions which are far beyond what a single upgrading program can accomplish.¹⁵⁵ Particularly in the case of informal settlements, if the costs are too high to build resiliency in place, governments should consider relocation instead of continuing to extend legal titles to the settlers and hoping these people can protect themselves under extreme weather events. For example, the city of Lagos, Nigeria, home to 18 to 21 million people, is under the threat of sea level rise and has encountered ocean surges and flooding in the past two decades. Destructive storms that hit informal settlements along the coastlines repeatedly in the six years between 2005 and 2011 displaced settlers and nudged the

150. *See id.* at 32–33.

151. Satterthwaite et al., *supra* note 2, at 149.

152. Geoffrey Payne, Alain Durand-Lasserve, & Carole Rakodi, *The Limits of Land Titling and Home Ownership*, 21 ENV'T & URBANIZATION 443–62, 448, 452, 454–55 (2009).

153. Michael Scott et al., *Human Settlements, Energy, and Industry*, in CLIMATE CHANGE 201: IMPACTS, ADAPTATION AND VULNERABILITY. CONTRIBUTION OF WORKING GROUP II TO THE SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 406 (James J. McCarthy et al. eds., 2001).

154. *See* Aromar Revi et al., *Towards Transformative Adaptation in Cities: The IPCC's Fifth Assessment*, 26 ENV'T & URBANIZATION 11–28 (2014).

155. Satterthwaite et al., *supra* note 2, at 145.

government to seriously consider the relocation of the existing settlers.¹⁵⁶ Additional examples will be discussed in the next section.

2. Resettlement

Though research has contemplated the possibility of relocation, it has thus far not been central to the discussion in the context of informal settlements.¹⁵⁷ Resettlement, or “managed retreat,”¹⁵⁸ as many scholars call it, is the strategy of last resort in the wake of the threat of climate change. It is therefore important to discuss how the residents of informal settlements can be protected while implementing climate-related resettlement. This section first introduces the concept of managed retreat and briefly explains how it was applied in the development-induced resettlement context in the 1980s. Then this paper discusses current climate-induced resettlement.

Currently, the discussion of managed retreat takes place primarily regarding formal urban planning scenarios, which are settlements visible on the city planning map. It is aimed at gradually moving people and property out of harm’s way when structural protections such as sea-wall construction and accommodations such as elevation of buildings are not feasible.¹⁵⁹ Managed retreat requires local governments to “preemptively regulate—to limit or prohibit new development and redevelopment in vulnerable areas.”¹⁶⁰ This concept is almost the opposite of upgrading. Whereas upgrading focuses on reinforcing in place, resettlement focuses on moving the community away from existing harms.

Scholars have categorized managed retreat measures into three levels: first, attempts to “delay or limit development in occupied or currently undeveloped at-risk areas,” for instance, by stipulating downzoning or imposing rebuilding restrictions; next, the gradual government acquisition of private lands through buyout programs; and, finally, the withdrawal and resettlement of communities away from flood-prone areas.¹⁶¹

The first two levels described above are ordinarily inapplicable as, by definition, informal settlements are illegally occupying land and are not compliant with

156. Idowu Ajibade, *Planned Retreat in Global South Megacities: Disentangling Policy, Practice, and Environmental Justice*, 157 *CLIMATIC CHANGE* 299, 303–05 (2019).

157. DAVID SATTERTHWAITE ET AL., INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT, *RESPONDING TO CLIMATE CHANGE IN CITIES AND IN THEIR INFORMAL SETTLEMENTS AND ECONOMIES* 27 (Mar. 2018), <https://perma.cc/J65W-5LMV>.

158. See A. R. Siders & Idowu Ajibade, *Introduction: Managed Retreat and Environmental Justice in a Changing Climate*, 11 *J. ENV’T STUD. & SCI.* 287 (2021).

159. See J. Peter Byrne & Jessica Grannis, *Coastal Retreat Measures*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS* 267, 268–69 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012).

160. *Id.* at 269. Byrne and Grannis suggest that managed retreat should be relabeled as “coastal ecology preservation,” to mitigate potential political challenges. *Id.*

161. Andrea McArdle, *Managing “Retreat”: The Challenges of Adapting Land Use to Climate Change*, 40 *U. ARK. LITTLE ROCK L. REV.* 605, 618–19 (2018).

existing urban plans. Therefore, this paper focuses on the third level: resettlement. For the many informal settlements located on sites at risk from floods and landslides, there are examples of both successful relocations¹⁶² and less successful ones, with residents not wanting to leave.¹⁶³ Some cities, such as Manila, have relocated informal settlers without providing sufficient affordable housing or livelihoods and job prospect support, and as a result, have generated a vicious cycle of retreat and return.¹⁶⁴

Resettlement is not a new term for less developed countries. In the late 1980s, there were increasing cases of development-induced resettlement,¹⁶⁵ and poor practices raised great concern in international society. Former World Bank senior advisor for Sociology and Social Policy Michael M. Cernea emphasized the social disruptions resettlement brought. He urged that planning and financial resettlement be incorporated into the resettlement process and into relevant legal frameworks, particularly in World Bank funded projects.¹⁶⁶ However, most governments still treated resettlement as an administrative task of moving people physically without considering resettlement a social restructuring process.¹⁶⁷ He also pointed out that in the 1990s and beyond 2000, there were increased cases of urban resettlement in developing countries.¹⁶⁸ In 2007, International Human Rights Council United Nations Special Rapporteur on adequate housing Miloon Kothari proposed the Basic Principles and Guidelines on development-based evictions and displacement to ensure that people's right to adequate housing, enshrined in the International Covenant on Economic, Social and Cultural Rights, were being protected.¹⁶⁹ However, the protection of informal settlement residents' right to adequate housing is an ongoing process. Today, the successors of Miloon Kothari, including Raquel Rolnik and Leilani Farha and the current Special Rapporteur Balakrishnan Rajagopal, continue to propose guidelines and implementation measures that can protect informal settlers' housing rights.¹⁷⁰

162. See Luz Stella Velázquez B., *Agenda 21: A Form of Joint Environmental Management in Manizales, Colombia*, 10 ENV'T & URBANIZATION 9, 28 (1998); ANDREA VALSAGNA ET AL., SECRETARIAT OF STRATEGIC DEV. AND COMM'N, SANTA FE CITY GOV'T, SANTA FE RESILIENCE STRATEGY (2017) <https://perma.cc/28MZ-B79E>.

163. Satterthwaite et al., *supra* note 2, at 151; Domingos José de Almeida Neto & Léo Heller, *Which is Riskier: Life on the Floodplain or in Housing Imposed from Above? The Case of Flood-Prone Areas in Rio Branco, Acre, Brazil*, 28 ENV'T & URBANIZATION 169, 176 (2016).

164. Ajibade, *supra* note 156, at 308–10.

165. Michael M. Cernea, *Involuntary Resettlement: Social Research, Policy and Planning*, in PUTTING PEOPLE FIRST SOCIOLOGICAL VARIABLES IN RURAL DEVELOPMENT 188, 188 (Michael M. Cernea ed., 2nd ed. 1991).

166. *Id.* at 208.

167. *Id.*

168. *Id.*

169. See U.N. Human Rights Council, Annex 1 of the report of the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, U.N. Doc. A/HRC/4/18 (February 5, 2007) [hereinafter *Special Rapporteur*], <https://perma.cc/VNA3-RHWN>.

170. *About the Mandate*, *supra* note 51.

Now, in the context of climate-induced resettlement, social and environmental justice are key emerging issues in relocation of informal settlements¹⁷¹ in both developed and less developed countries.¹⁷² Siders and Ajibade surveyed a range of resettlement case studies worldwide and concluded that there are several reoccurring elements that could improve the relocation process and potentially also the outcomes, which include:

transparent and equitable policies, self-determination of communities, holistic metrics for assessing individual and community well-being, the importance of culture both as something to be protected and an asset to be leveraged, and the need to address historical and systemic injustices that contribute to vulnerability and exposure to risk.¹⁷³

Similarly, Tadgell et al., through an expansive literature review, propose five climate-related resettlement principles for low-income and informal communities in less developed nations. Specifically, they propose being proactive, maintaining good communication and participation, permanent resettlement, providing compensation and incentives, and protection of livelihoods.¹⁷⁴ These five principles are valuable for assessing the appropriateness and flexibility of implementing managed retreat.

Resettlement has been disdained historically, given its socially disruptive nature. However, it is important to note that resettlement can offer informal settlers secure tenure or housing rights and can even enhance their living conditions. Most informal settlers are willing to move when offered government compensation. For instance, in the city of Solo, Indonesia, the government implemented a relocation plan for informal settlers living along riverbanks. This policy was supported because it addressed people's basic needs and provided legal status and tenure. The city government linked its social welfare programs with obtainment of legal tenure at the new settlement location, providing incentive for people to move away from harm.¹⁷⁵ Throughout the implementation, the careful planning process and ongoing dialogue between the government and the settlers were shown to reduce conflict and help settlers relocate to places where they are safer and can obtain legal title to their property.¹⁷⁶

Resettlement not only saves the lives of informal settlers but can also safeguard the greater urban area. For instance, in the city of Manizales in Colombia, after

171. See Siders & Ajibade, *supra* note 158.

172. See *id.* at 289.

173. *Id.* at 287.

174. Anne Tadgell et al., *Principles for Climate-Related Resettlement of Informal Settlements in Less Developed Nations: A Review of Resettlement Literature and Institutional Guidelines*, 10 CLIMATE & DEV. 102 (2017).

175. John Taylor, *A Tale of Two Cities: Comparing Alternative Approaches to Reducing the Vulnerability of Riverbank Communities in Two Indonesian Cities*, 27 ENV'T & URBANIZATION 621, 632 (2015).

176. *Id.* at 622.

relocating informal settlers from a hillside, the government used the land to create eco-parks operated by community organizations.¹⁷⁷ In Santa Fe, Argentina, the government transformed a flood-prone informal settlement into a nature reserve and a city park.¹⁷⁸ If a resettlement is conducted meticulously, once people are moved away from harm, the land can be returned to its natural state as a flood plain or a wetland, which protects the greater metropolitan area.¹⁷⁹

This paper argues that for small-scale informal settlements in a flood-prone zone, the government's long-term plan should be allowing the land to return to its natural state and considering a practical and feasible alternate plan for the current settlers. In this scenario, upgrading is not an optimal solution as it can worsen the environment and put people in harm's way in the long term. Particularly in the case of comprehensive upgrading, the government gives informal settlers land rights, effectively inviting disadvantaged people to remain in harm's way.

3. Upgrading vs. Resettlement in Shezidao

In the case of Shezidao, dwellers lack flood awareness because years of flood control engineering projects have gradually lessened the frequency and severity of floods. Some scholars promoting the idea that humans should be living with the water are helping Shezidao dwellers to develop a plan to “keep-people-in-place.” They suggest that the Netherlands' amphibious houses or floating houses may be a feasible alternative.¹⁸⁰ However, informal settlements' extra-legal character adds another layer of complexity. Before they can stay in place, an important prerequisite is to sort out the issue of ownership and land tenure, which as described above, is without a clear legal record in many cases. If this puzzle cannot be solved, the idea of staying in place not only puts people in danger due to climate change, but also continues the status of insecure tenure.

In addition, private property owners are politically powerful and in Shezidaos they have been powerful enough to stall the whole planning progress for over forty years. At the same time, the longer an informal settlement stays in place, the

177. Velásquez B., *supra* note 162, at 24–25; Satterthwaite et al., *supra* note 2, at 152.

178. VALSAGNA, ET AL., *supra* note 162, at 53.

179. As noted above, the body of scholarship thus far has focused mainly on *less developed* countries. One obvious reason, as noted earlier in this article, is that informal settlements in the developed world are generally not recognized or discussed. Another reason is that some scholars in the managed retreat field have taken a binary approach: resettlement for less developed countries and realignment for developed countries. This binary approach and linkage with the status of the countries can be both inaccurate and misleading. According to this approach, the concept of realignment means “withdrawing human settlements away from threatened zones, restricting construction and controlling the environmental degradation of these areas.” Tadjell et al., *supra* note 174, at 102. Resettlement is set aside as another category of managed retreat. It seems to be the presumption of this categorization that developed countries do not have any informal settlements because they are mostly under formal urban systems, whereas developing or less developed countries usually have weak or no formal urban system.

180. Liao Kuei-Hsien, *Guihua yige Shengtai Zhengyi de Shezidao Weilai* (規劃一個生態、正義的社子島未來) [*Plan for an Ecological and Just Shezidao*], MING REN TANG (鳴人堂) (Apr. 27, 2015), <https://perma.cc/RZ23-TMNC>.

harder it is for the government to make changes. There is also growing public support for these informal settlers. As time passes and the process is drawn out, upgrading and regularizing the area and providing public services becomes a seemingly “just” resolution which, in fact, keeps people in harms’ way.

Resettlement is never an easy decision; it requires careful calibration, and the government must utilize all available democratic tools before taking the approach of resettlement, as we will discuss in the next section.¹⁸¹

C. PLANNING IN THE DEMOCRATIC CONTEXT

There is no clear-cut answer to the decision of upgrading in place or resettlement. Informal settlements are most vulnerable because of their extra-legal nature, but a democratic context presents a unique set of tools the government can use in the face of climate change. The rule of law and protection of human rights, the two key pillars that support democracy, are both relevant with regard to planning for informal settlements. Here, this paper uses these two pillars to discuss two potential options for informal settlements in Shezidao: upgrading or resettlement. Following this analysis, this paper also points out the particular challenges and opportunities of these options in the democratic context.

With regard to the rule of law, substantively, planning and land-use laws and building codes are particularly critical as they determine whether a settlement is legal or not. In the case of Shezidao, the legal issue is complicated. Because no agreed upon flood management plan was ever put in place, no urban plan could be put in place, either, and so for the past four decades, no buildings have been built legally and no public services have been made available.

On a larger scale, flood management plans and urban plans must be further integrated throughout the planning process. The case of Shezidao also demonstrates a typical scenario of informal settlements worldwide: a geographically vulnerable location. As noted earlier, Shezidao is an informal settlement located on a low-lying flood plain at the confluence of the two main rivers and is vulnerable to floods. Another typical scenario seen in Shezidao is the government’s choice to protect the city center as opposed to the periphery of the city, where these informal settlements are typically found. Now, because of sea-level rise and extreme weather events, informal settlers are facing even more severe living conditions than ever.

One efficient, effective way to integrate is to coordinate the review of flood management and urban plans. Under current laws in Taiwan, these plans are reviewed separately. The most updated Water Act of 2021¹⁸² does mention urban plans in Chapter 7-1, “Runoff Allocation and Outflow Control,” requiring urban

181. See R.H. Moss et al., *Planned Relocation: Pluralistic and Integrated Science and Governance*, 372 SCIENCE 1276, 1276 (Jul. 6, 2021).

182. Shuili Fa (水利法) [Water Act], Diqizhang zhi yi Jingliu Fendan yu Chuliu Guanzhi (第七章之一 逕流分擔與出流管制) [Chapter 7-1 Runoff Allocation and Outflow Control].

plan changes due to changing conditions.¹⁸³ However, the fundamental structure still makes flood management plans and urban plans two independent plans. It is now more critical than ever to connect the two laws. By integrating the decision-making processes, the government will have a better sense of whether to upgrade or to resettle because it will have answers to questions such as: If the government chooses to upgrade, what climate risks must the people in the city center bear? What reinforcement of flood-proof infrastructure must be in place? What corresponding urban plan adjustment must be made? If the government chooses to resettle the people, where can these people live? Is the current land-use plan sufficient, or does it need to be changed?

The procedural aspect of the rule of law is public participation. Public participation is frequently mentioned in scholarship regarding informal settlements in democratic contexts. This paper emphasizes the importance of the legal foundation of public participation: the procedural due process of law. In the United States, due process of law is explicitly enshrined in the Constitution,¹⁸⁴ whereas Taiwanese procedural due process was built through years of Constitutional Court decisions.¹⁸⁵ One of the most important cases requires procedural due process in local urban renewal decisions.¹⁸⁶ The Court first recognized that “[a] renewal implementation involves the pursuit of important public interests, significantly affects the property rights and the freedom of residence of owners of various renewal units and surrounding lands and legal buildings, and is prone to disputes due to the complicated interests involved.”¹⁸⁷ The Court further required that related urban renewal laws should “. . . prescribe the due process for administrative procedures that must be observed, including procedures ensuring that interested parties are kept informed of all relevant information and allowing interested parties to present their opinions in a timely manner in oral or written form to the competent authority to assert or protect their rights.”¹⁸⁸ Most importantly, the Court requires that a formal hearing take place before the final approval of an urban plan.¹⁸⁹

183. For instance, in Article 83-2 “To respond to climate change and ensure the effect of existing flood control facilities, the central authority-in-charge may make a public announcement of implementation scope of the specific river basins or catchment areas of regional drainage for runoff allocation depending on the flooding potential, the degree of urban development and major constructions.” Water Act chap. 7-1, art. 83-2.

184. U.S. CONST. amends. V, XIV.

185. See Sifa Yuan Dafaguan Jieshi No. 709 (司法院大法官解釋第709號) [Judicial Yuan Interpretation No. 709: Review and Approval of Urban Renewal Project Summaries and Plans Case] (2013) (Taiwan); Sifa Yuan Dafaguan Jieshi No. 731 (司法院大法官解釋第731號) [Judicial Yuan Interpretation No. 731] (2013) (Taiwan); Sifa Yuan Dafaguan Jieshi No. 739 (司法院大法官解釋第739號) [Judicial Yuan Interpretation No. 739] (2013) (Taiwan).

186. Judicial Yuan Interpretation No. 709.

187. *Id.* at 4.

188. *Id.*

189. *Id.* (“The approval of an urban renewal project plan in particular directly and significantly imposes restrictions on the people’s rights to property and freedom of residence. Therefore, the Act

The upgrading plan that Taipei City Mayor Ko chose for Shezidao is a more complex version of an urban renewal plan. However, because neither the flood management plan nor the urban plan requires an administrative hearing, the only hearing held was based on the MOI Urban Planning Committee's requirement that the Taipei City Government hold a hearing regarding eminent domain and relocation of original dwellers.¹⁹⁰ The hearing was criticized as a mere formality and without substantial effect on the final decision.¹⁹¹ Many have questioned the purpose of that hearing, claiming that there was no point in discussing the eminent domain and relocation plan before finalizing an agreed upon and feasible urban plan.¹⁹²

In addition to the legally required public participation process, Mayor Ko has made at least two innovative attempts to build consensus and broaden support for his plans. In 2016, to ensure that the plan would fulfill the expectation of most stakeholders, as mentioned above, he conducted an innovative public participation method – “i-voting” – to let the residents of Shezidao vote on Shezidao's future.¹⁹³ However, the process has been questioned.¹⁹⁴ Mayor Ko attempted to do the same in 2021 after the environmental impact assessment was again received poorly. To realize his election campaign promise before the end of his second term, Mayor Ko initiated a new public participation project to determine which solutions the local dwellers needed. This included solutions to physiological needs (garbage clean-up, waste disposal, property and housing rights, and sewage treatment); safety needs (local community service, elderly care, and transportation); social connections (building communication platforms and fostering community consciousness); dignity of being a dweller on Shezidao; and self-realization (claiming descendants' rights).¹⁹⁵ However, this participation

should require the competent authority to conduct the hearings in public, allow interested parties to be present at the hearings as well as present their statements and arguments orally during the hearings, and, after taking into consideration all the records of the hearings, explain the rationale for adopting or declining the arguments when deciding on the approval. Only in this fashion is the Act consistent with the meaning and purpose of the constitutional guarantee of the people's rights to property and freedom of residence.”).

190. Taibeishi Tudi Kaifa Zongdui (土地開發總隊) [Dep't Land Admin., Taipei City Gov't], *Shezidao Chaiqian Anzhi Tingzhen* (社子島拆遷安置聽證) [*Shezidao's Resettlement Hearing*], TAIBEISHI TUDI KAIFA ZONGDUI (臺北市政府地政局土地開發總隊) (2019), <https://perma.cc/EB3D-JAYY>.

191. Hong-Yi Guo, *Shezidao Anzhi Tingzheng Ziwoganjue Lianghao de Taibeishi* (社子島安置聽證, 自我感覺良好的台北市府) [*Taipei City Government Congratulates Itself on the Shezidao Resettlement Hearing*], MING REN TANG (鳴人堂) (Apr. 15, 2019), <https://perma.cc/PH64-HTTW>.

192. *Id.*

193. Taipei City Gov't, *supra* note 132.

194. Kuei-Hsien Liao, *Shezidao Wenti Buneng Shewang Yong Jiaminzhude i-Voting Jiejue* (社子島問題不能奢望用假民主的*i-Voting*解決) [*The Problem of Shezidao Can't be Solved Through i-Voting, A Fake Democratic Solution*], MING REN TANG (鳴人堂) (Feb. 02, 2016), <https://perma.cc/4TXN-Q8TB>.

195. Taipei City Gov't, *supra* note 132.

project was criticized for lacking communication.¹⁹⁶ These criticisms demonstrate the challenge of designing a fair public participation process that satisfies everyone.

As resettlement becomes unavoidable, the Taiwanese government should consider both the substantive and procedural dimensions to the process. There are two substantive issues. The first issue is the legal protections for informal settlers. By claiming Shezidao as an informal settlement, under the Taiwanese Housing Act, Article 53, residents of this area could secure tenure and avoid future forced eviction.¹⁹⁷ As noted earlier, legally secure tenure is the essence of the right to adequate housing and is specifically enshrined in international human rights covenants. In Taiwan, Article 53 of the Housing Act states that “Housing is a fundamental human right as described and interpreted by the ICESCR and ICCPR.”¹⁹⁸ The “[r]ight to adequate housing” is enshrined in Article 11 (1) of the International Covenant on Economic, Social and Cultural Rights (“ICESCR”), as noted in Part I.C. Article 17 of the International Covenant on Civil and Political Rights (“ICCPR”) also says that “No one shall be subjected to arbitrary or unlawful interference with his . . . home.”¹⁹⁹ In two National Human Rights Reviews, held in 2013 and 2017, international experts have explicitly raised the issue of development-induced forced evictions of informal settlers in Taiwanese government-led development projects.²⁰⁰ Debates and discussions from these reviews can be referenced when it eventually comes to resettlement.

The second issue is that people who qualify as low-income should be relocated to appropriate public housing. Like many developed countries, Taiwan now has a proactive public housing policy. Because the price of residential housing is notoriously high and unaffordable, in the past ten years, the Taipei City Government has been dedicated to promoting public housing. Currently, there are 20,372

196. See, e.g., Si-Pei Cai, *Shezidao Kaifaan Fujian Kangyi Liangpai Jumin Jilie Chongtu Laiwang Cheliang Tingshi Guanzhan* (社子島開發案府前抗議 兩派居民激烈衝突 來往車輛停駛觀戰) [*Shezidao Development Project Residents Protested in front of the Taipei City Hall, Divided Residents with intensified conflict*], ZIYOU SHIBAO DIANZIBAO (自由時報電子報) [LIBERTY TIMES NET] (Aug. 18, 2021), <https://perma.cc/CV5E-DVR4>.

197. Zhuzhaifa (住宅法) [Housing Act] §53 (Taiwan).

198. *Id.*

199. G.A. Res. 2200A (XXI) International Covenant on Civil and Political Rights, art. 17 (Dec. 16, 1966). While Taiwanese ratification was rejected by the Secretary-General of the United Nations (UN), Taiwan’s government has passed the domestic statutes necessary to incorporate the listed human rights into the Taiwanese legal system.

200. See INTERNATIONAL REVIEW COMMITTEE, REVIEW OF THE SECOND REPORTS OF THE GOVERNMENT OF TAIWAN ON THE IMPLEMENTATION OF THE INTERNATIONAL HUMAN RIGHTS COVENANTS: REVIEW OF THE SECOND REPORTS OF THE GOVERNMENT OF TAIWAN ON THE IMPLEMENTATION OF THE INTERNATIONAL HUMAN RIGHTS COVENANTS 7–8 (Jan. 20, 2017); INTERNATIONAL REVIEW COMMITTEE, REVIEW OF THE INITIAL REPORTS OF THE GOVERNMENT OF TAIWAN ON THE IMPLEMENTATION OF THE INTERNATIONAL HUMAN RIGHTS COVENANTS: REVIEW OF THE SECOND REPORTS OF THE GOVERNMENT OF TAIWAN ON THE IMPLEMENTATION OF THE INTERNATIONAL HUMAN RIGHTS COVENANTS 10 (Mar. 1, 2013). To date, legal claims for the right to adequate housing have only been applied to informal settlers in the context of development-based evictions and displacement.

public housing units in Taipei City and 16,787 public housing units in New Taipei City.²⁰¹ If informal settlers are eligible for public housing, the City Government should make them the first priority among those eligible to rent public housing in Taipei and New Taipei City. According to a brief survey, there are at least five city-led social housing projects within 7 kilometers of Shezidao.²⁰² These projects present potential opportunities for connecting social housing policy with any resettlement plan that is developed. If nearby public housing is utilized, original Shezidao dwellers could stay close to home, continue working at the same place, and remain connected with the community they are familiar with. Relocation fees and other subsidies should also be provided to make resettlement more accessible for informal settlers. Currently, relocation fees are already stipulated by law for governments when facilitating eminent domain for public use: owners of the houses are compensated.²⁰³ However, a more specific, context-based relocation fee calculation for those unregistered illegal houses that were newly built in recent years might need to be further considered.

Procedurally, it is crucial to administer relocation utilizing all due process measures available, as appropriate. In the context of resettlement for informal settlement dwellers, it is also important to recognize their housing rights and provide them the right to be heard. The complex relationships among dwellers, homeowners, landowners, developers, politicians, interest groups, and NGOs make the process especially critical. A city government's decision-making process should be as transparent and inclusive as possible to avoid procedural challenges. From determining settlers' willingness to relocate, conducting individual interviews and community engagement should be centered throughout the process. "Basic Principles and Guidelines on Development-based Evictions and Displacement," designed for the development context, should be applied in this context to prevent forced eviction.²⁰⁴

Although democracy provides a set of legal tools for addressing the challenges of informal settlements, there are also challenges inherent in the democratic context. As noted earlier, two of these are clientelism and capitalism. The current Shezidao community is divided into two groups: one supports the current redevelopment plan, and the other wants a lower-impact upgrade plan. The former mainly consists of the landowners and developers who generally have secured

201. Shehui Zhuzhai Tuidong Jindu (社會住宅推動進度) [*Public Housing Promoting Progress*], NEIZHENGBU BUDONGCHAN ZIXUN PINGTAI (內政部不動產資訊平台) [MINISTRY OF THE INTERIOR REAL ESTATES INFORMATION PLATFORM], <https://perma.cc/t5kj-uv5p> (last visited May 18, 2021).

202. Taipei Shizhengfu (台北市政府) [Taipei City Government], *Taipei Shizhengfu Anxinlezu Wang* / 臺北市安心樂租網 (*Taipei City House Rental*), TAIPEI CITY HOUSE RENTAL, <https://perma.cc/79J9-52BX> (last visited May 16, 2021).

203. Taibeishi juban gongong gongcheng chaiqian buchang zizhi tiaoli (臺北市舉辦公共工程拆遷補償自治條例) [Taipei City Public Infrastructure Relocation Compensation Act] (2017). The current law only compensates residents for those illegal houses that were built before August 1st, 1988. Taipei City Public Infrastructure Relocation Compensation Act § 7(1)(iii).

204. *Special Rapporteur*, *supra* note 169.

tenure and property rights, whereas the latter consists of informal settlers who do not have clear legal titles or tenure to the houses they live in or the land they occupy.

Because of clientelism, the division between these two groups has deepened. Shezidao has long been leveraged politically in local elections. Yet in the past four decades, politicians across the ideological spectrum have worsened rather than improved the lives of its dwellers. Capitalism has also worsened the situation by turning land into a commodity. In the past, land value fluctuated with the government's policy. In 2014, when it was speculated that the proposed plan was about to be approved, the land value in Shezidao was over NT\$61,000 (\$2,193.06) per square meter, and in 2019 when the new plan had little chance of approval, the value had decreased to around NT\$48,576 (\$1,746.40) per square meter.²⁰⁵ Land value decreased 20 percent in five years.

The Taiwanese government's role is to provide well-researched upgrading or resettlement while allowing residents to participate in the process. Large-scale city planning can greatly impact any densely populated and developed city, let alone a large-scale waterfront area like Shezidao. More importantly, any changes to the flood management plan at the waterfront could impact the city center. Shezidao should use its advanced knowledge and resources to ensure the safety of its citizens while securing informal settlers' future housing.

CONCLUSION

Long-existing legal informalities and current climate change threats exacerbate informal settlements' poor living conditions and limit the human rights of the people who reside in them. This paper uses Shezidao as a case study to illustrate the complex legal challenges an informal settlement in a developed and democratic country may encounter. Although the legal measures discussed here are particular to the situation in Shezidao, many of them could be applied in other similar democratic contexts which honor rule of law and human rights and yet face great challenges of implementing further planning measures for the informal settlements.

Although political dynamics complicate the problems with informal settlements, a more comprehensive solution which benefits all citizens can be developed through transparent public participation. The public welfare system that is already in place in formal urban settings can be used to support informal settlers more quickly than in developing or underdeveloped countries.

205. Peng, *supra* note 58.

To date, most research regarding informal settlements has focused on those in what is commonly known as the developing world, primarily but not exclusively located in the southern hemisphere, where thousands of dwellers live in large-scale enclaves. It is time for city government officials, planners, and scholars to look for adaptation clues in the hidden or ignored informal settlements of the developed and democratic world. Meanwhile, legal scholars must explore the legal challenges involved in this context.