

# Whose Mobilities and Mangroves?

The Politics of Climate Change Knowledge in Urbanizing Low-Lying Small Island Communities in Bohol, Philippines

John Ryan Jacot 



Urban Studies Program

# Whose Mobilities and Mangroves?

The Politics of Climate Change Knowledge in Urbanizing Low-Lying Small Island Communities in Bohol, Philippines

*John Ryan Jacot*



# UP CIDS DISCUSSION PAPER SERIES

2026-37

UP CIDS Discussion Paper Series is published by the

**University of the Philippines  
Center for Integrative and Development Studies**

Lower Ground Floor, Ang Bahay ng Alumni  
Magsaysay Avenue, University of the Philippines  
Diliman, Quezon City 1101

Telephone: (02) 8981-8500 loc. 4266 to 4268 / (02) 8426-0955

Email: [cidspublications@up.edu.ph](mailto:cidspublications@up.edu.ph)

Website: [cids.up.edu.ph](http://cids.up.edu.ph)



[cids.up.edu.ph](http://cids.up.edu.ph)

**Copyright © 2026  
by the UP Center for Integrative and Development Studies**

The views and opinions expressed in this discussion paper are those of the author/s and neither reflect nor represent those of the University of the Philippines or the UP Center for Integrative and Development Studies. No copies can be made in part or in whole without prior written permission from the authors/editors and the publisher.

**ISSN 2619-7448 (Print)  
ISSN 2619-7456 (Online)**

**Cover Image Credit**

"Nasingin Island at high tide (above) and a portion of the mangrove plantation on Banacon Island (below)."

# Table of Contents

<b>Key Highlights</b>	1
<b>Background</b>	2
Objectives of the Discussion Paper	4
<b>Theoretical Premise: Critical Political Ecology, the Politics of Climate Change Knowledge, and Urbanizing Low-Lying Small Island Communities</b>	5
Critical Political Ecology and the Politics of Climate Change Knowledge	6
Urbanizing Small Low-Lying Island Communities as Urban Fringes	8
<b>Discussion</b>	9
Whose homes and mobilities? The climate (im)mobilities of Nasingin island residents	9
Whose Mangroves? Green State Territorialization and Mangrove Planting in Banacon Island	12
<b>Conclusion and Policy Recommendations: Whose knowledge counts in knowing and enacting the climate?</b>	18
Acknowledgement	20
Funding	20
<b>References</b>	20



Download related policy papers for FREE

[cids.up.edu.ph/collection-database](https://cids.up.edu.ph/collection-database)



PROCEEDINGS 2026-27  
Urban Studies Program

## Night Markets in the Philippines: Between Precarity and Inclusivity

A Public Forum

5 December 2025  
UP Mindanao CHSS Audio Visual Room



ISSN 2718-9285 (PRINT)  
ISSN 2718-9309 (ONLINE)

### PROCEEDINGS

Night Markets in the Philippines: Between Precarity and Inclusivity: A Public Forum



DISCUSSION PAPER SERIES 2026-17

## Beyond Cleanups

Stakeholder Roles and Institutional Gaps in Managing the Iloilo-Batiano River System

Alan Moscoso, Rhodella Ibabao, and Brian Ventura



Urban Studies Program

ISSN 2619-7445 (PRINT)  
ISSN 2619-7453 (ONLINE)

### DISCUSSION PAPER

Beyond Cleanups: Stakeholder Roles and Institutional Gaps in Managing the Iloilo–Batiano River System

# Whose Mobilities and Mangroves?

The Politics of Climate Change Knowledge in Urbanizing Low-Lying Small Island Communities in Bohol, Philippines

*John Ryan Jacot<sup>12</sup>*

---

1 Project Fellow, Urban Studies Program, UP Center for Integrative and Development Studies

2 Instructor, Political Science Program, College of Social Sciences, University of the Philippines Cebu, Email: [jmjacot@up.edu.ph](mailto:jmjacot@up.edu.ph)

# Key Highlights

- This discussion paper argues that the urbanizing low-lying small island communities of Nasingin and Banacon in Getafe, Bohol are sites of contested climate change knowledge revealed through tensions in their climate mobilities over debates between relocation and in-situ adaptation strategies as well as the claims of knowledge and interventions that underpin national greening programs.
- The paper is theoretically anchored in critical political ecology, which contests the illusion of scientific neutrality and unsettles the dominance of Western science. From this, it draws on the politics of climate change knowledge to understand the dynamics that determine what counts as valid climate change knowledge in urbanizing low-lying island communities.
- The insights of this paper are primarily drawn from two focus group discussions in Nasingin and Banacon islands triangulated with an analysis of relevant presidential directives, DENR administrative orders, and guidelines on the state greening programs, as well as secondary literature.
- Findings reveal that both island communities expose the frictions produced when expert-driven, state-led interventions are imposed onto situated ways of knowing and enacting climate change. In Nasingin, contesting the primacy of relocating to the mainland, residents practice and prefer in-situ adaptation strategies grounded in fishing livelihoods, close kinship ties, and the elevation of houses and land. In Banacon, the residents' cyclical plant-harvest-replant "way of life" has been constrained by successive state greening interventions, which has imposed controls over the extent and management of mangrove planting despite the plantation having been voluntarily established and tended by residents long before formal state involvement.
- Asking "whose knowledge counts," the paper recommends that local government units, guided by the National Climate Change Action Plan and their Local Climate Change Action Plans recognize the plural forms of people's climate mobilities, including the right to stay and adapt in place. Greening programs should move beyond the "standard policy package" frames by recognizing and protecting the claims of tenure and stewardship as the starting point of these initiatives. Without attending to the plural ways of knowing and enacting climate change, policy risks narrowing down to interventions that reinforce frames of development that enable and produce climate challenges.

## Background

The rapid uncontrolled urbanization of coastal metropolitan regions such as Metro Cebu has led to the emergence of new urban forms beyond what are already porous urban cores. These new urban forms comprise the artifacts and processes that underpin urbanization, illustrating how urbanization is a process that unsettles and organizes landscapes, ecologies, and lives according to relations that sustain the city, often with social and environmental costs beyond the city. Critical urban studies, drawing largely on urban political ecology, problematizes urbanization by understanding the city as a “socio-nature” where social and environmental processes are interconnected and reveal asymmetrical relations between the city and the beyond-the-city as well as the peri-urban interface where conventional urban limits are obscured as an urban core or the “city” fizzles and dissolves into its peripheries or the “beyond-the-city” (Simon et al. 2004; Adell 1999). The varying forms of the “urban” are prominently understood through place-based perspectives that locate these forms within proximate distances, dissolving from one form to another (Singh and Narain 2020). However, these urban forms are also understood from more functional and transitional perspectives that underscore the contested transformations from predominantly rural to a precarious combination of rural and urban land uses, landscapes, and livelihoods through dynamic land conversion, high population growth, shifting economic activities, and altering uneven resource flows. In a study that traced and explained how the Laguna de Bay functions as Metro Manila’s resource frontier, Saguin (2022), for example, explained that urban fringes are marked by their locationality at the continuous zone where the city dissolves into the beyond-the-city, the unique and novel ecological relations engendered by its liminality or in-betweenness, and a sense of constant emergence and flux, which make the configurations of urban space and its constituent elements always at the point of possible disruption and reconfiguration. These relations between urban forms are essential to the functioning of the city and make these areas sites of socio-ecological conflicts that produce unjust and uneven patterns in the distribution of resources and externalities. It follows that urbanization is not just a process centered on the unprecedented growth of the city—the urban core—as its functioning encompasses the uneven ordering of lives and ecologies in sites beyond the “urban” such as peri-urban interfaces and fringes.

Taking a place-based approach, conventional and historical measures for demarcating the urban limits—that is, the imposed borders between urban “developed” zones and the “undeveloped” zones—of Metro Cebu highlight the island’s physical geographical features such as its narrow coastal plains and mountainous interior. “The Metro Cebu Land Use and Transport Study,” for instance, accounts for these features and recommends an urban expansion in already concentrated urban zones with the inclusion of prospective coastal land reclamation, designating a proposed limit to urban expansion in the mountainous areas deemed “unsuitable for urban development” (Cal and Cholerton 1981). The same has also been reflected in the Mega Cebu Vision 2050 and the Roadmap Study for Sustainable Urban Development commissioned by the now-defunct Metro Cebu Development Coordinating Board (MCDCB) and the Japan International Cooperation Agency (JICA), which set out a sub-roadmap for urban structure and land use. The roadmap study sets the urban limits at the upper lands above the circumferential road of the island, setting it on the hilly slopes of Metro Cebu. While these planning frameworks and roadmaps are instrumental for urban planners and policymakers in regulating the appropriate land use—if at all possible, that is—for the city’s patchwork of intended urban and rural lands, they are not useful analytics in recognizing the spatial relations of the city and the beyond-the-city or the sites of fringes and peripheral relations that may well be beyond a city’s proximate geographies. It is in this context that this discussion paper accounts for the functional and transitional relations between and among urban cores, peri-urban interfaces, and fringes and consequently makes space for urban forms that are arguably linked to Metro Cebu and its urbanizing pressures but are not within the conventional proximity of the metropolitan region as defined by prior and existing planning frameworks.

Metropolitan Cebu is a contested spatial arrangement assembled largely by claims to a metropolitan identity that binds separate neighboring cities and localities and articulations of an integrated urban form in various planning frameworks. A conventional configuration of the metropolitan area arranges the highly urbanized cities of Cebu, Mandaue, and Lapu-Lapu with the provincial component cities of Talisay, Naga, Carcar, and Danao, and the municipalities of Minglanilla, San Fernando, Compostela, Consolacion, Cordova, and Liloan as an urban network of neighboring localities in the same elongated island of Cebu and the proximate island of Mactan. Grounded, however, by a relational thinking of urbanity that is based on diverse yet interconnected urban forms, this paper makes space for urban geographies beyond the city, particularly the urbanizing low-lying small island communities of Nasingin and Banacon

at the Danajon Bank, a double barrier reef located at the Camotes Sea and at the northwestern tip of Bohol island, an island province neighboring Cebu. Banacon is an island known as an ecotourism hub for its massive mangrove (*Rhizophora stylosa*) plantation covering approximately 425 hectares, whereas Nasingin is a fishing community on a 1.16-kilometer-long island known for its extremely dense population. Both island communities are, as this paper will demonstrate, marked by conditions of liminality and precarity that are unpacked through contested values and claims surrounding the environment and climate change.

These urbanizing low-lying small island communities are vulnerable to various climate change challenges such as sea level rise, unprecedented tidal flooding, coastal erosion, and extreme storms with increasing rainfall and stronger winds. Beyond physical inundation, these communities also struggle with saltwater intrusion into groundwater and scarcity in rainwater supplies, often necessitating water imports from Bohol. These island communities are also the site of contestations surrounding climate change knowledge and broader domains in environmental science where frictions in knowledge and practice are performed and evident in discussions on mainland relocation (to Bohol), livelihood and ecotourism imperatives, and even the ways of “knowing” climate change. These frictions inform and reflect broader debates on the politics of climate change knowledge, reflecting persisting value-laden tensions between global, top-down, scientific narratives of climate adaptation and local, bottom-up, situated perspectives. This paper is thus also informed by critical political ecology in demonstrating that climate vulnerability is defined as much by social, political, and institutional agents and conditions as much as it is by the conventional biophysical measures of climate change.

### *Objectives of the Discussion Paper*

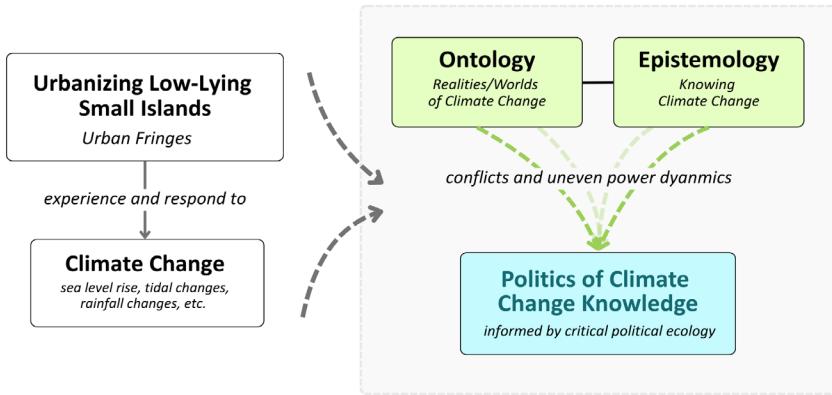
It follows that this discussion paper argues that the urbanizing low-lying small island communities of Nasingin and Banacon in Getafe, Bohol, which are located at the peripheries of Metro Cebu, are sites of contested climate change knowledge and governance. Marked by their urban in-betweenness and liminality, conflicts on the source and practice of climate knowledge and interventions are prevalent. Grounded by the theoretical anchors of critical political ecology in the context of climate change knowledge and uneven urban relations, this discussion paper illustrates these climate knowledge and intervention conflicts through the disputes that occur (a) over their climate mobilities between relocation or in situ adaptation because of sea

level rise and (b) on the claims of knowledge and intervention that underpin national greening programs. This paper argues that these conflicts illustrate the dominance of expertise and the consequent claims of scientific neutrality deployed in conventional environmental science and by agents such as the national government. By intersecting the politics of climate change knowledge with critical urban studies, this paper contributes to both empirical studies grounded in comparative urbanism and climate policy debates. It achieves this by unpacking how the unique conditions of urban fringes amplify frictions between local practices and scientific climate knowledge, further demonstrating how spatial peripheral conditions and epistemological contestations in climate change mutually reinforce one another. The paper concludes with policy recommendations for inclusive climate adaptation and the integration of traditional, locally situated ecological knowledge into climate change policy and urban governance.

## **Theoretical Premise: Critical Political Ecology, the Politics of Climate Change Knowledge, and Urbanizing Low-Lying Small Island Communities**

Informed by critical political ecology that seeks to “interrogate science and work with multiple situated knowledges” (Forsyth 2003), the premise of the paper is consequently anchored on two key intersecting theoretical frames (see figure 1): (1) that climate change knowledge is contested because the process of producing and enacting it is driven by uneven power dynamics involved in knowing and managing nature in a manner that privileges Western science and marginalize local knowledge and land use practices; and (2) that urbanizing low-lying small island communities represent an emergent urban fringe characterized by distinct risks and vulnerabilities arising from their biophysical position at the land–sea interface. It follows that the uneven power dynamics conditioning the politics of climate change knowledge are inextricably linked to the islands’ conditions of emergence, liminality, and precarity.

Figure 1. Theoretical-conceptual framework



## *Critical Political Ecology and the Politics of Climate Change Knowledge*

Critical political ecology (CPE) is a theoretical approach that contests the illusion of scientific neutrality by arguing that social and political framings inform and shape environmental science from the production of knowledge, the framing of environmental problems, and the solutions proposed to address them. In other words, science and politics are mutually constituted in that environmental science is deeply embedded in social and political contexts. It differs from the earlier school of political ecology by explicitly offering a critique of the science-politics binary and the orthodoxy of scientific explanations and unsettling the dominance of Western science, which, as CPE claims and illustrates, marginalizes local knowledge. It is grounded and marked by an epistemological and ontological pluralism that unsettles singular and universal claims to knowledge production and practice – acknowledging a plurality of existing worlds (Forsyth, 2003) and proposing alternative modes of knowing, practice, and life. From this pluralism, the practice of critical political ecology advances knowledge co-production, highlighting the interdependence of knowledge and social orders, and concerns for social justice and equity for human and more-than-human worlds.

This discussion paper utilizes CPE as the theoretical approach that informs and explains the dynamics of the politics of climate change knowledge. Goldman et al. (2018) argue that the politics of climate change knowledge—specifically, the politics of knowing and enacting climate change—is marked by the uneven power dynamics that determine what constitutes valid knowledge, which, as CPE argues, is largely influenced and structured by Western science. This includes limited mechanisms for accessing and acting upon such knowledge, as well as disparate responsibilities for driving, mitigating, and adapting to climate change. These uneven power dynamics reflect epistemological (how we know climate change) and ontological (what is climate change) conflicts that inform what essentially counts as climate change knowledge and the corresponding interventions to address its challenges. For instance, Goldman et al. (2018) noted that the language of adaptation, vulnerability, and resilience, which is at the core of the human dimensions of climate change discourse, are used as fluid categories (Carpenter et al. 2001) or “standardized packages” (Fujimura 1992; Goldman 2009) that offer a limiting view of climate change that undermines alternative, context-specific ways of knowing (Eriksen et al. 2015; Shah et al. 2017) and close down on particular forms responding to climate change challenges, often leading to investments in packaged templates of Western technology (e.g. irrigation, satellite-based early warning systems, etc.) without considering situated innovations to climate variability. Another case is evident in instrumental co-production where multiple forms of climate change knowledge are either simply “integrated,” where local and indigenous knowledge is added and situated in the already dominant scientific accounts of climate change, or formalized in routine practice through the development of standardized guidelines (Hegger and Dieprink 2014). The asymmetrical tendency of the latter is demonstrated when there is a strong reliance and dependence on top-down models of scientific expertise instead of the more reflexive and emancipatory approaches supposedly advanced by co-production. The politics of climate change knowledge is also evident in the way that multiple ontologies—the recognition of other worlds and realities—are undermined, reinforcing particular nature-society dualisms and power dynamics attached to established scientific ways of knowing and doing (Ojha et al. 2016)—producing, in effect, a condition where one reality is chosen to matter more than others (Mol 2002). This discussion paper unpacks the instances where the uneven power dynamics that underlie the politics of climate change are performed and surfaced in the case of urbanizing small island communities at risk of sea level rise. This paper does so by identifying what forms of knowledge are undermined if not systematically excluded when community residents are asked to relocate, incentivized to cultivate and protect nonnative flora in their ecosystems, or take part in aid and assistance programs.

## *Urbanizing Small Low-Lying Island Communities as Urban Fringes*

Where do we situate low-lying island communities in Getafe, Bohol, Philippines, in urban studies? Critical urban studies, informed by urban political ecology, are grounded on a relational understanding of uneven relations between the city and the beyond-the-city, diverging from the dominance of place-based categories and divides between urban and rural (Simon et al. 2004; Adell 1999). Early works in the urban studies literature draw on the urbanization of nature thesis, which describes the process by which all types of nature are socially mobilized, economically incorporated, and physically metabolized to support the urbanization process (Kaika and Swyngedouw 2011). Thus, urbanity is marked by the continuous socio-ecological transformation in space that happens as various human and more-than-human elements are enrolled and linked in an urban system. Later urban studies scholars critique what they call a “methodological city-ism,” which is the “analytical privileging, isolation, and perhaps, naturalization of the city in studies of urban processes where the non-city may also be significant” (Wachsmuth 2014)—effectively reinforcing the urban–rural divide that urban political ecology attempted to dissolve to begin with (McKinnon et al. 2017). It is in this context that scholars such as Tzaninis et al. (2020) call for a more-than-urban political ecology by focusing on emergent urban forms beyond the city. They do so by looking into the spaces and lives of those outside the city or urban centers that have been largely overlooked by urban geography despite being linked to the urban system either by proximity or relation. They call for a political ecology that examines processes and management practices beyond the privileged scales and places that have been the focal point of earlier urban studies (Tzaninis et al. 2020). From this concern with urban ecologies beyond the city, urban fringes are seen as the spaces that sustain the city through its uneven socio-ecological relations with it, resulting in conditions of emergence, liminality, and transition where “the city dissolves into the beyond-the-city” (Saguin 2022, 10). In other words, urban fringes are not the “city” but are tied to urban life for various reasons, from uneven metabolic relations, urban aspirations, and even political and economic contestations over how risks are perceived, valued, and acted upon.

It follows that this discussion paper conceptualizes urbanizing small island communities as urban fringes that are highly vulnerable to climate change, understood as an emerging urban form through various ways of being (ontologies) and knowing (epistemologies). They are “urban” not only in so far as they are “urbanizing” (marked by high population density) but because their livelihoods and risks are tied to what happens in Metro Cebu or in the

mainland in Getafe, Bohol—creating space for contestations over whose risks, livelihoods, climate knowledge, and adaptation pathways count. Past studies of low-lying island communities have demonstrated situated capacities for dealing with climate change challenges and high-risk scenarios such as sea level rise, which may not necessarily be attuned to conventional approaches that see mainland migration as a form of climate adaptation (see Vinke et al. 2020; Jamero et al. 2017; Jamero et al. 2018). For instance, in a study on potential adaptation strategies to sea level rise in four low-lying island communities in Bohol, Jamero et al. (2017) found that residents prefer in situ adaptation strategies such as the stiling of houses, raising of floors and roads, and reclaiming land from coral mining rather than relocation to the mainland, despite guarantees by local authorities on the relocation. These cases and their divergence from conventional approaches to adaptation suggest that community residents make adaptation decisions based on their livelihoods, perceptions of hazards on the mainland, and their sociocultural attachment to the islands; these further suggest, as this paper argues, different ways of knowing and enacting climate change in these islands.

## Discussion

In the section that follows, the paper discusses the climate mobilities of Nasingin island residents and the experience of green state territorialization on the mangrove plantations of Banacon island. The paper casts these two cases in the two urbanizing low-lying island communities as visible ways through which the politics of climate change knowledge is exposed and enacted, which draw us to questions over what climate mobilities (in the Nasingin case) are valued and which claims of mangrove planting endure (in the Banacon case).

### *Whose homes and mobilities? The climate (im) mobilities of Nasingin island residents*

Mass migration accounts of climate change hold that in the face of compounding hazards and risks that potentially threaten human life, people tend to migrate to low-risk safe zones (Black et al. 2011; Baldwin et al. 2014). This view, which is marked by a one-way linear directional flow of people fleeing risks, has consistently been instrumental in securitized framings of climate-induced migration and has been critiqued by the notion of climate mobilities, which invites plural ways of seeing and enacting everyday mobility patterns as a result of climate change (Boas et al., 2022). Climate mobilities reject exceptionalist accounts of movement that quickly narrow down to a

stimulus-response equation of policy and practice and instead look into the lived conditions under which a multiplicity of mobilities actually occur every day as part of people's routines and livelihoods. It thus acknowledges people's right to stay and adapt to climate change as much as it includes people's right to move and adapt to new locational conditions. A focus group discussion (FGD) with the residents of Nasingin Island revealed a situated preference for in-situ adaptation to sea level rise due to intersecting dimensions such as their small-scale fishing livelihood and a sense of attachment to the island. Small-scale fishing routines and market access, as well as in situ adaptation practices, demonstrate how Nasingin island residents practice their everyday mobilities amid climate change, countering expert-driven state-led frames of climate risks and the inevitability of migrating to low-risk zones on the mainland.

In Nasingin Island, residents recount that the local government previously introduced a relocation program that would facilitate their transfer to mainland Bohol Island. However, these offers of permanent relocation were rejected because of the island community's fishing livelihood (*panagat*). As a Nasingin resident expressed, "Tagaan bitaw mi, Ma'am, pero among panagat diri gyud" (We were given housing offers, but our fishing livelihood is here [on the island]). Small-scale fishing in Nasingin Island is a routinized practice grounded in knowledge and skills developed across generations and through a situated understanding of tidal behavior. Residents track tides through lunar phases from the *subang* (new moon), *takdol* (full moon), and *himatayon* (waning) and cross-reference these with the printed tidal charts in calendars, supplementing both with knowledge passed down from elders. Interestingly, stories from older generations of Nasingin fishers include cautionary tales of how distant reclamation projects in Cebu would eventually push the sea inward toward the island and cause sea level rise. August is the peak season for income from fishing yields, and the catch is dominated by *bangus* (milkfish fry), *alimango* (mud crab), and *danggit* (rabbitfish that is often sun-dried and sold as a delicacy), which residents themselves credit to the protective role of the surrounding mangroves. Attempts to diversify through *gusô* (seaweed) farming have largely failed as it has been undermined by recurring theft within the community itself and has left residents discouraged. Batches of fish were once carried directly to Pasil Market in Cebu, but the costs of larger boats have narrowed down the fishers' mobility and access to the market. Despite these challenges, fishing largely remains the preferred and sustaining livelihood of island residents and remains a core reason for why they exercise their (im)mobilities by staying in place at Nasingin while maintaining everyday livelihood mobilities.

Notably, Nasingin residents also express a deep attachment to the island as their home as articulated through the stories of its elders and the densely interwoven kinship patterns that bind them together. Elders frame their belonging by describing how their lives are bounded by the island from birth to old age: “Ako, Ma’am, diri na ko natawo. 64 na ko, mag-coming 65, diri na ko matawo” (I was born here. I am 64 now, turning 65 soon, and I will grow old here). One working-age resident who occasionally travels to Cebu for short-term work echoed a similar sense of belonging, noting that: “Diri gihapon ko mouli kay ari man ko natawo” (Eng. I’ll always come back here because this is where I was born). This attachment is further reinforced by ancestry, as residents trace their lineage on the island back to 1919 from island settlers from Cordova, Cebu, and describe the community as essentially one extended kinship network: “lumad gyud, mga paryente ra” (Eng. truly native, all relatives). These accounts of home suggest that island residents, many of whom belong to the third or fourth generation since the first residents, have constructed their sense of home around Nasingin as a place where they are born, raised, practice their livelihood, form families, and eventually grow old. While some younger residents expressed aspirations to study and work in Cebu or mainland Bohol, they nonetheless intend to return, which is a pattern that holds even for those who have married “outsiders,” who continue to visit twice a month and return for fiestas.

Rejecting relocation plans because of their fishing livelihoods and sense of home, Nasingin island residents practice in situ adaptation strategies to sea level rise most visibly by raising and reinforcing their houses (ipasangka ang mga balay) and expanding structures vertically. Residents particularly described how they reuse solid waste and rubble as alternative fill materials to extend the island. They would layer the fill materials with stone and seal the layers with cement, describing the practice as their own form of reclamation that also simultaneously addresses arising solid waste management issues. As one resident noted: “Dili man na isyu namo ang walay mo-collect. Naay uban nga ari ra namo na. Mahimog reclaim para gamay na lang gamiton. Basura, unya bato unta basura na pud” (It’s not really an issue for us that no one collects [the garbage]. There are some [of us] who just keep it here. It can be turned into reclamation so that less [fill materials] need to be used. Garbage, then stone, then garbage again). This practice is similar to how households in Bilangbilangan utilize solid waste as alternative fill materials as a hard adaptation measure that also addresses irregular waste collection schedules of the municipal government (Jamero et al. 2017). On another note, houses that were damaged due to Typhoon Odette in December 2021 were rebuilt with

concrete reinforcement. Mangrove planting was also identified as a crucial strategy: “Ang amo diri, Ma’am, kay amping ug ampo, unya ikaduha pud kay naa sad mi proteksiyon gikan sa kalikasan, mao nang magtanom mig mga mangroves” (Here, we care for one another and pray. We are also protected by nature, which is why we plant mangroves). Residents credited the mangroves with preventing fatalities during Odette and with sustaining fisheries despite a long-term gradual decline in fishing yields.

The range of mobilities exercised by Nasingin residents reveals that they have developed situated approaches to engaging with climate change as experienced through sea level rise. Their in-situ adaptation strategies range from raising and reinforcing houses, protecting mangroves, observing and cross-referencing lunar cycles to anticipate tide levels, and infilling shoreline edges with rubble and waste, together with their profound sense of attachment and belonging to the island and the centrality of fishing to their livelihoods, shape how island residents respond to a rising sea. These everyday practices, rather than any singular event of relocation or flight, reflect how Nasingin island residents have adapted to climate change over time. State-led interventions such as relocation programs, sometimes framed along the lines of “migration as adaptation” (see Vinke et al. 2020), are quick to narrow the policy imagination toward what is assumed to be the most rational, optimal, and risk-reducing intervention for island residents. Yet such framings risk undermining the differentiated and place-based mobilities and the knowledge that underpins them that island residents already practice. The daily movements between sea and the mainland shores, seasonal fishing, and the intergenerational circular mobilities of those who leave for school or work have all shaped their lives and ecologies. To treat relocation as a singular and optimal adaptation pathway misrecognizes what adaptation looks like when it is already being lived without externally imposed risk-reducing interventions.

### *Whose Mangroves? Green State Territorialization and Mangrove Planting in Banacon Island*

Banacon Island is an ecotourism destination and fishing island community, where many of its residents are descendants of fisherfolk who migrated from Talisay and from Ermita and Pasil, Cebu (Amper, 2004). What makes Banacon Island community distinctive is that it has the largest man-made mangrove plantation in the Philippines as a result of waves of mangrove planting practices. Households on the island tend to mangrove plots, usually four hectares each, which are also a source of nearshore crabs, shrimps, shellfish, and other

marine life. The plantation is laced with a 10-meter-wide central “highway” (the so-called Paden Highway) for motorboat passage and narrow foot trails for making family stands and markers. Despite having mangrove planting, harvesting, and re-planting as the island residents’ “way of life” (Amper 2004, 245), the practice has consistently been subject to state regulation and greening interventions which further complicated situated mangrove planting practices as well as the tenurial rights of residents throughout waves of state overreach from the blocking of a Certificate of Stewardship Contract that the island community applied for through the Integrated Social Forestry program in 1982, Presidential Proclamation 2151 which declared Banacon as a “wilderness area” in 1984, the National Greening Program of the Department of Environment and Natural Resources (DENR) in 2011, and other successive national programs and administrative orders that have alternately encouraged and frustrated the efforts of Banacon Island households in gaining rights over the mangrove plantation that they themselves planted.

**Table 1. State interventions and programs over mangrove plantations in the vicinity of Banacon Island, Bohol**

<b>Period</b>	<b>State Intervention</b>	<b>Impact on Banacon island mangroves</b>
1978–81	Communal Tree Farm Program (BFD)	Formalized residency through a forest occupancy agreement with the supply of additional mangrove propagules
1982	Integrated Social Forestry (ISF) Program	Raised hopes of secure tenure through the Certificate of Stewardship Contract (CSC)
1984	Presidential Proclamation 2151	Declared Banacon a “wilderness area,” which aborted the CSC, banned mangrove harvesting, and discouraged further planting
1992	NIPAS Act (RA 7161)	Hardened restrictions into a ban on mangrove cutting
1995–2000	Community-Based Forest Management (CMBFM) Program (EO 263)	₱7,000 was paid per hectare of mangroves planted. The Banacon Fisherfolks and Mangrove Planters Association (BAFMAPA) was formed to pursue the CBFM agreement.
2000–2003	DENR Administrative Order 2000-83	Moratorium on tenurial awards for islands under 10,000 ha, which aborted the BAFMAPA's CBFM agreement on the day of its scheduled award

Period	State Intervention	Impact on Banacon island mangroves
2003	DENR Administrative Order 2003-06	Revoked the moratorium (DENR DAO 2000-83)
2011–present	National Greening Program (NGP), intensified post-Yolanda (2013)	Added more or less than 100 ha by 2015 with a planned 400-ha expansion

Source: Amper (2004) for 1978 to 2003 and FGD data triangulated with program information on the NGP from the DENR (2025)

These successive proclamations, administrative orders, and programs that aim to govern the space where mangroves are planted in Banacon Island reflect varying forms and practices of state-led territorialization, which socialize and cast the mangrove plantation as a political mangrove plantation or, as the literature notes, a “political forest” (see Vandergeest and Peluso, 2015). State territorialization refers to the set of practices and arrangements imposed and operated by state institutions that enforce a legal claim over a defined geographic space for the purpose of controlling it and managing its embedded natural resources. As a “spatial expression of state political and economic power” (Woods, 2019), this territoriality relies heavily on the state’s claim to sovereign power, which is consequently enacted and performed through techniques of power and regulation that “bring the state” in the area. These techniques include mapping the island and the mangrove plantation, bringing bureaucrats and state-sponsored teams of environmental experts, imposing resource use and access regulations and zoning measures, and, of course, legitimizing state territorial acts through the declaration and enforcement of legal-administrative codes (republic acts, presidential proclamations, administrative orders, department orders, among others). In Banacon islands, the mangrove plantation is political in that it has been rendered legible and “governable” before the state through the legal codes this paper lists in Table 1—effectively demonstrating and legitimizing the extent of state bureaucratic power over the environment. State territorialization takes a “green”<sup>3</sup> character in that environmental protection and conservation objectives are intimately intertwined with the exercise of state political and economic power over the

3 For an expanded discussion of green state territorialization or “green territoriality,” see Woods (2019)

island and its mangrove plantations—legitimizing “bringing the state” into the plantations under claims of the State’s sovereign powers.

“Green” state territorialization over Banacon mangrove plantations unveils frictions over claims of ownership and stewardship over planted mangroves, which, as this paper later explains, point to contested claims of knowing and enacting the environment and the climate. Amper (2004) has comprehensively discussed these state interventions in a study that situated Banacon reforestation programs within the contestations between indigenous development and national state-led development. Drawing on Amper (2004), this paper thus only briefly explains these state interventions before expounding on the recent National Greening Program (NGP) in 2011.

Bakhaw Bangkaw mangroves over the seabed near Banacon Island were originally planted by residents beginning in 1957 through pioneer planter Eugenio Paden (Amper 2004). The early generation of mangrove planters saw the would-be mangrove plantation as a potential source of household income from harvesting and selling the mangrove wood as well as the seafood from the plantation. The Integrated Social Forestry (ISF) program, which introduced the Certificate of Stewardship Contract, raised hopes for mangrove caretakers in securing tenurial rights of 25 years over the plantations they nurtured. However, this hope was quickly abruptly in 1984 by Presidential Proclamation 2151, which declared Banacon a “wilderness area” despite, as Amper (2004) pointed out, the presence of the island residents even before the mangroves grew. Republic Act No. 7161, or the National Integrated Protected Areas System (NIPAS) Act of 1992, treated these wilderness areas as initial NIPAS components, which meant that there was a harder ban on mangrove cutting. Succeeding orders from the Office of the President and the DENR reflected changing regulations of guaranteeing community rights of use, access, and stewardship over the mangrove plantation and imposing a moratorium. In 2011, the DENR introduced the National Greening Program (NGP) as the country’s flagship reforestation initiative that targets planting 1.5 billion trees across 1.5 million hectares of land to pursue poverty reduction, food security, biodiversity conservation, and climate change mitigation.<sup>4</sup> The program involves engaging people’s organizations in managing protected areas and forestlands through the Community-based Forest Management Agreement (CBFMA). These successive layers and streams of legal-administrative codes

---

4 Executive Order (EO) No. 26, s. 2011

reflect the state's claims of environmental protection and stewardship over the mangrove plantations in the vicinity of Banacon Island, which illustrate "green" territorial acts of the state that render the Banacon mangrove plantations legible before national greening and environmental stewardship initiatives. However, by defining the terms and conditions for the management, protection, and sustainable use of mangroves, the state imposes its own knowledge, values, and environmental claims onto a plantation that emerged not through state initiative but through the labor of Banacon's early mangrove planters.

The accounts of current Banacon island residents, as unpacked through an FGD, reveal their continued frustration over the "green" extension of bureaucratic state power through agents like the DENR. One resident was quick to articulate and reflect their confusion over the state's logic of protection by saying that their elders have long planted mangroves without government support and, recently, they are unable to practice the cycles of planting, harvesting, and re-planting mangroves—their mangrove "way of life"—because of the state's regulations. This paper emphasizes that the labor that produced the mangrove plantation was voluntary, yet the resulting mangrove plantation, which is celebrated as an ecotourism site, has been regulated through legal-administrative codes that render the mangrove planters as "trespassing" the "wilderness" they created. As residents highlighted their way of life, they were quick to recall memories of when mangrove wood was actively used as a household and commercial resource: "Gamit kaayo sa amoa ang mangroves [sa paghimo og] balay . . . Daghan siya gamit, Ma'am, kana ang pinakanindot nga firewood. Kanang mga baker sa una, ga-order gyud" (Mangroves were useful for us to build houses. They are even the finest firewood. Bakeries even used to order from us). The mangrove plantation, thus, functioned as a multi-purpose asset for sustaining the island residents' livelihoods by being their source of construction materials, firewood, seaweed drying racks, and fish pens, which were used in Banacon Island and other nearby island communities. Contrary to conventional perceptions of disrupting mangrove ecosystems, mangrove use was rather cyclical than strictly extractive in that mangroves were planted, harvested, and replanted by households who acted as stewards in their designated plantation plots.

Reflecting the state's greening approach, which was centered on preserving the mangrove plantations without necessarily considering the situated practices of its planting and use, the implementation of the NGP in Banacon Island in the aftermath of Super Typhoon Yolanda further revealed the greening program's contradictions. The NGP in Banacon Island, as residents claimed, offered as much as P10,000 to P30,000 per hectare, mostly benefiting members

of people's organizations in the area. The program definitely incentivized the expansion of the mangrove plantation. However, the mangrove species introduced through the NGP, most notably the locally named *tongki*, were ill-suited to the sandy substrates of the nearshore seagrass zone. As Amper (2004) noted, past greening interventions of the DENR's Ecosystem Research and Development Service in Region 7 already revealed the unsuitability of *tongki* and *tabigi* on the Banacon Island seabed. Since they were planted on the sandy nearshore seagrass zone, the NGP mangroves displaced the community's primary catch of *kinason* (sea snails), *pasayan* (shrimp), and *lambay* (crabs), which are seagrass-dependent species that constitute the recent bulk of household income on the island. *Imbaw* (clams) replaced these seagrass-dependent species; however, residents described how they were not needed for their livelihoods. It follows that the NGP produced a mangrove plantation landscape in which neither the original seagrass habitat nor a viable mangrove plantation was sustained, and where residents bore the regulatory consequences of an intervention they had not designed.

Green state territorialization in Banacon Island operated through the complementing legal-administrative codes and layered expert bureaucratic apparatus of environmental management handbooks, technical guidelines, and zoning rules. While they may be deemed neutral technical tools, they are rather techniques of state power and expert bureaucratic authority over an island seascape that Banacon Island residents had already organized through their own cyclical routines and practices. Through these tools, local practices were disciplined and overwritten by uniform technical standards of "sustainably" managing mangrove plantations, interestingly, even though these tools included provisions that acknowledge planting techniques unique to particular island contexts. Echoing Amper (2004), the mangroves in Banacon Island are akin to a "political forest" (Peluso and Vandergeest 2001) in that they have been rendered legible, governable, and enforceable state territory, tended and ordered by standardized practice in the face of situated ways of practicing cyclical mangrove planting, harvesting, and re-planting.

## Conclusion and Policy Recommendations: Whose knowledge counts in knowing and enacting the climate?

The climate mobilities of the Nasingin island community and the green state territoriality that is contestably operating in Banacon Island invite reflection on whose knowledge counts when climate change is known and enacted. The politics of climate change and, more broadly, environmental knowledge is performed in the frictions between relocation and in-situ adaptation, in the contested claims of use of the nearshore seabed and mangrove plantations, the legal-administrative codes that render plantations as “wilderness,” and in the everyday practices of climate-adaptive mobilities that endure despite expert-driven state interventions. Following Goldman et al. (2018), these frictions reveal the uneven power dynamics that shape constructions of “valid” climate knowledge, and even which climate adaptation responses are rendered legible as adaptation at all. In both island communities, the interventions operate as what may be described by Fujimura (1992) as “standardized packages” from offers of relocation in Nasingin aligned to frames of “migration as adaptation” (Vinke et al. 2020) and green state interventions such as the National Greening Program that comes with rules and prescriptions over mangrove species, zoning, and project costs, which shape constructs of what constitutes a “good” and “well-managed” mangrove plantation. These standardized packages narrow the imagination of adaptation by presenting itself as an optimal and risk-reducing response while rendering situated island practices as non-compliant and, at the extreme, deviant.

These frictions in climate change knowledge operate epistemologically and ontologically. Epistemologically, the lunar tracking of *subang*, *takdol*, and *himatayon* in Nasingin and the working situated knowledge of species suitability and seabed substrates in Banacon are not local knowledge supplements to universal scientific accounts of climate change. Instead, they hold diagnostic, predictive, and historically situated value as knowledge forms of a changing coastal environment. Ontologically, the way Nasingin island residents see the island as their intergenerational home varies from the frames of climate risk science that would render the island as a hazard zone, which consequently animates discussions of mainland relocation. In Banacon Island, mangrove planters see the mangrove as a cyclical coastal resource that is core to sustaining their island way of life and livelihood, which diverges from state-led frames that see the mangrove as an object of nature that requires state

administration and management for its protection as inscribed in varying legal-administrative codes. Following Mol (2002), the political effect is that a particular reality is made to count more than the others: planters become trespassers that should be ordered in the mangrove “wilderness” they made, and in the long term, island residents vulnerable to sea level rise are rendered “noncompliant” or unruly to relocation.

In view of the uneven politics of climate change and environmental knowledge, this discussion paper recommends the following key policy recommendations:

1. While government agencies are guided by the Philippine *National Climate Change Action Plan 2011–2028* and the *Local Climate Change Action Plans* of local government units, planning and implementing climate change mitigation and adaptation measures should be cognizant of the plural ways of knowing and engaging with climate change to avoid ill-suited and maladaptive outcomes that may produce uneven landscapes of risk and benefits over communities. This includes opening space for the notion of climate mobilities in the adaptation policies and programs—investing public resources to capacitate communities to understand and respond to climate change on their own terms instead of assuming, by default, the primacy of relocation programs.
2. The *National Greening Program* should resist the way it programs its management and guidelines as a “standardized policy package” enacted through centralized management handbooks and technical guidance. Instead, it should facilitate the co-production of forest or plantation management practices with communities who have long practiced stewardship. This means moving beyond the instrumentalist integration of local knowledge into preset “default” planning templates and toward more reflexive exercises that recognize plural ways of doing cyclical planting, harvesting, and replanting routines and ultimately respect the tenurial claims of situated communities as a starting point for greening programs.

Reading these frictions in climate change knowledge through the lens of the urban fringes further suggests that the contested framings of climate change and environmental stewardship on these island communities are themselves produced in and for urban centers ranging from the binaries of risky and risk-free space centered on the mainland that animates relocation discussions and the imaginaries of frontier conservatism over mangrove plantations that

should be sustained for “green” solutions to climate change challenges. Urban fringes are the dynamic spaces where diverging climate epistemologies and ontologies are visibly contested and where so-called “standardized packages” that have emerged amid climate change transitions are troubled and unsettled by local and situated frames of policy and perspectives. To ask “whose knowledge counts” in Nasingin and Banacon definitely points to broader questions of whose worlds, livelihoods, and futures are made to matter in the unfolding politics of climate change, mindful of the plural ways of knowing and enacting climate change. Otherwise, we risk narrowing down to solutions that enable the enduring frames of development that rendered the challenges of a rapidly changing climate possible in the first place.

### *Acknowledgement*

The author thanks the barangay leaders and group discussion participants from Nasingin and Banacon islands in Getafe, Bohol, for kindly welcoming the author and the Urban Studies project research team to their respective island communities in July 2025. We are truly grateful for sharing your time, stories, and food with us. No potential conflict of interest was reported by the author.

### *Funding*

This discussion paper is an output of the UP Cebu project, “Urbanity on the Edge: Sustainability, Risk Governance and Co-benefits in Urban Small Island Communities in Central Visayas” (2025), under the Urban Studies program of the UP Center for Integrative and Development Studies.

## **References**

- Adell, Germán. 1999. *Theories and Models of the Peri-urban Interface: A Changing Conceptual Landscape*. Draft for discussion, March 1999. Development Planning Unit, University College London. <https://discovery.ucl.ac.uk/id/eprint/43/>.
- Amper, Zona Hildegarda Saniel. 2004. “Indigenous Development amid National Development: The Case of Mangrove Reforestation in Banacon Island, Getafe, Bohol.” *Philippine Quarterly of Culture and Society* 32(3/4): 237–58. <http://www.jstor.org/stable/29792561>.

- Baldwin, Andrew, Chris Methmann, and Delf Rothe. 2014. "Securitizing 'Climate Refugees': The Futurology of Climate-Induced Migration." *Critical Studies on Security* 2(2): 121–30. <https://doi.org/10.1080/21624887.2014.943570>.
- Bettini, Giovanni, and Anna Casaglia. 2024. "From Denial to Domestication: Unpacking Italy's Right-Wing Approach to Climate Migration and Security." *Geoforum* 155 (104079). <https://doi.org/10.1016/j.geoforum.2024.104079>.
- Black, Richard, Stephen R. G. Bennett, Sandy M. Thomas, & John R. Beddington. 2011. "Migration as Adaptation." *Nature* 478 (7370): 447–49. <https://doi.org/10.1038/478477a>.
- Boas, Ingrid, Hanne Wiegel, Carol Farbotko, Jeroen Warner, and Mimi Sheller. 2022. "Climate Mobilities: Migration, Im/mobilities and Mobility Regimes in a Changing Climate." *Journal of Ethnic and Migration Studies* 48(14): 3365–79. <https://doi.org/10.1080/1369183x.2022.2066264>.
- Cal, Primitivo P., and Christopher A. Cholerton. 1981. "The Metro Cebu Land Use and Transportation Study (MCLUTS)." *Philippine Planning Journal* 13 (1): 5–32. [https://conference.surp.upd.edu.ph/downloads/PPJ/Vol-XIII,-No.-1-\(October-1981\)--Metro-Cebu-Land-Use-and-Transport-Study.pdf](https://conference.surp.upd.edu.ph/downloads/PPJ/Vol-XIII,-No.-1-(October-1981)--Metro-Cebu-Land-Use-and-Transport-Study.pdf).
- Carpenter, Steve, Brian Walker, J. Marty Anderies, and Nick Abel. 2001. "From Metaphor to Measurement: Resilience of What to What?" *Ecosystems* 4(8): 765–81. <https://doi.org/10.1007/s10021-001-0045-9>.
- Department of Environment and Natural Resources–Forest Management Bureau. 2025. "What is the National Greening Program?" National Greening Program. <https://fmb.denr.gov.ph/ngp/what-is-ngp/>.
- Eriksen, Siri H., Andrea J. Nightingale, and Hallie Eakin. 2015. "Reframing Adaptation: The Political Nature of Climate Change Adaptation." *Global Environmental Change* 35: 523–33. <https://doi.org/10.1016/j.gloenvcha.2015.09.014>.
- Felli, Romain. 2013. "Managing Climate Insecurity by Ensuring Continuous Capital Accumulation: 'Climate Refugees' and 'Climate Migrants.'" *New Political Economy* 18 (3): 337–63. <https://doi.org/10.1080/13563467.2012.687716>.
- Follmann, Alexander. 2022. "Geographies of Peri-urbanization in the Global South." *Geography Compass* 16 (7): e12650. <https://doi.org/10.1111/gec3.12650>.

- Forsyth, Tim. 2003. *Critical Political Ecology: The Politics of Environmental Science*. Routledge.
- Fujimura, Joan H. 1992. "Crafting Science: Standardized Packages, Boundary Objects, and "Translation." *Science as Practice and Culture*, edited by Andrew Pickering, 168–211. University of Chicago Press.
- Goldman, Mara. 2009. "Constructing Connectivity: Conservation Corridors and Conservation Politics in East African Rangelands." *Annals of the Association of American Geographers* 99 (2): 335–59. <https://doi.org/10.1080/00045600802708325>.
- Goldman, Mara J., Matthew D. Turner, and Meaghan Daly. 2018. "A Critical Political Ecology of Human Dimensions of Climate Change: Epistemology, Ontology, and Ethics." *Wiley Interdisciplinary Reviews Climate Change* 9 (4): e526. <https://doi.org/10.1002/wcc.526>.
- Hegger, Dries, and Carel Dieperink. 2014. "Toward Successful Joint Knowledge Production for Climate Change Adaptation: Lessons from Six Regional Projects in the Netherlands." *Ecology and Society* 19 (2): 34. <https://doi.org/10.5751/es-06453-190234>.
- Jamero, Ma. Laurice, Motoharu Onuki, Miguel Esteban, and Nicholson Tan. 2018. "Community-Based Adaptation in Low-Lying Islands in the Philippines: Challenges and Lessons Learned." *Regional Environmental Change* 18 (8): 2249–60. <https://doi.org/10.1007/s10113-018-1332-8>.
- Jamero, Ma. Laurice, Motoharu Onuki, Miguel Esteban, Xysa Kristina Billones-Sensano, et al. 2017. "Small-Island Communities in the Philippines Prefer Local Measures to Relocation in Response to Sea-Level Rise." *Nature Climate Change* 7 (8): 581–86. <https://doi.org/10.1038/nclimate3344>.
- Jamero, Ma. Laurice, Motoharu Onuki, Miguel Esteban, Christopher Chadwick, et al. 2019. "In-Situ Adaptation Against Climate Change Can Enable Relocation of Impoverished Small Islands." *Marine Policy* 108 (103614). <https://doi.org/10.1016/j.marpol.2019.103614>.
- Kaika, Maria, and Erik Swyngedouw. 2011. "The Urbanization of Nature: Great Promises, Impasse, and New Beginnings." In *The New Blackwell Companion to the City*, edited by Gary Bridge and Sophie Watson, 96–107. Blackwell Publishing Ltd. <https://doi.org/10.1002/9781444395105.ch9>.

- McKinnon, Innisfree, Patrick T. Hurley, Colleen C. Myles, Megan Maccaroni, and Trina Filan. 2017. "Uneven Urban Metabolisms: Toward an Integrative (Ex) urban Political Ecology of Sustainability in and Around the City." *Urban Geography* 40 (3): 352–77. <https://doi.org/10.1080/02723638.2017.1388733>.
- Mol, Annemarie. 2002. *The Body multiple: Ontology in Medical Practice*. Duke University Press. <https://doi.org/10.1215/9780822384151>.
- Narain, Vishal, and Aditya Kumar Singh. 2018. "Replacement or Displacement? Periurbanisation and Changing Water Access in the Kumaon Himalaya, India." *Land Use Policy* 82: 130–37. <https://doi.org/10.1016/j.landusepol.2018.12.004>.
- Ojha, Hemant R., Sharad Ghimire, Adam Pain, Andrea Nightingale, Dli B. Khatri, and Hari Dhungana. 2015. "Policy Without Politics: Technocratic Control of Climate Change Adaptation Policy Making in Nepal." *Climate Policy* 16 (4): 415–33. <https://doi.org/10.1080/14693062.2014.1003775>.
- Peluso, Nancy Lee, and Christian Lund. 2011. "New Frontiers of Land Control: Introduction." *Journal of Peasant Studies* 38 (4): 667–81. <https://doi.org/10.1080/03066150.2011.607692>.
- Peluso, Nancy Lee, and Peter Vandergeest. 2001. "Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand." *Journal of Asian Studies* 60 (3): 761–812. <https://doi.org/10.2307/2700109>.
- Saguin, Kristian Karlo. 2022. *Urban Ecologies on the Edge: Making Manila's Resource Frontier*. University of California Press.
- Shah, Sameer H., Leonora C. Angeles, and Leila M. Harris. 2017. "Worlding the Intangibility of Resilience: The Case of Rice Farmers and Water-Related Risk in the Philippines." *World Development* 98: 400–412. <https://doi.org/10.1016/j.worlddev.2017.05.004>.
- Simon, David, Duncan McGregor, and Kwasi Nsiah-Gyabaah. 2004. "The Changing Urban-Rural Interface of African Cities: Definitional Issues and an Application to Kumasi, Ghana." *Environment and Urbanization* 16 (2): 235–48. <https://doi.org/10.1177/095624780401600214>.
- Singh, Aditya Kumar, and Vishal Narain. 2020. "Lost in Transition: Perspectives, Processes and Transformations in Periurbanizing India." *Cities* 97 (102494). <https://doi.org/10.1016/j.cities.2019.102494>.

- Tzaninis, Yannis, Tait Mandler, T., Kaika, Maria, and Roger Keil. 2020. "Moving Urban Political Ecology Beyond the 'Urbanization of Nature.'" *Progress in Human Geography* 45 (2): 229–52. <https://doi.org/10.1177/0309132520903350>.
- Vandergeest, Peter, and Nancy Lee Peluso. 1995. "Territorialization and State Power in Thailand." *Theory and Society: An Interdisciplinary Social Science Journal* 24: 385–426. <https://doi.org/10.1007/BF00993352>.



# **THE UP CIDS DISCUSSION PAPER SERIES**

The UP CIDS Discussion Paper Series features preliminary researches that may be subject to further revisions and is circulated to elicit comments and suggestions for enrichment and refinement. They contain findings on issues that are aligned with the core agenda of the research programs under the University of the Philippines Center for Integrative and Development Studies (UP CIDS).

## **Center for Integrative and Development Studies**

Established in 1985 by University of the Philippines (UP) President Edgardo J. Angara, the UP Center for Integrative and Development Studies (UP CIDS) is the policy research unit of the University that connects disciplines and scholars across the several units of the UP System. It is mandated to encourage collaborative and rigorous research addressing issues of national significance by supporting scholars and securing funding, enabling them to produce outputs and recommendations for public policy.

The UP CIDS currently has twelve research programs that are clustered under the areas of education and capacity building, development, and social, political, and cultural studies. It publishes policy briefs, monographs, webinar/conference/forum proceedings, and the Philippine Journal for Public Policy, all of which can be downloaded free from the UP CIDS website.

## **The Program**

The thrust of the Urban Studies Program is to bring to the fore the critical issues around urbanization and urban humanity in the policy discourses for the country. It brings together studies on cities especially with acute vulnerabilities such as coastal cities across the Philippines that directly respond to emerging concerns on urbanism with a specific lens on inclusive and just resilience framework.

# Editorial Board

Rosalie Arcala Hall  
*Editor-in-Chief*

Honeylet L. Alerta  
*Deputy Editor-in-Chief*

# Program Editors

## Education and Capacity Building Cluster

Dina S. Ocampo  
Lorina Y. Calingasan  
*Education Research Program*

Rosalie Arcala Hall  
*Program on Higher Education Research and Policy Reform*

Romylyn Metila  
Marlene Ferido  
*Assessment, Curriculum, and Technology Research Program*

Ebinezer R. Florano  
*Program on Data Science for Public Policy*

## Social, Political, and Cultural Studies Cluster

Rogelio Alicor L. Panao  
*Program on Social and Political Change*

Darwin J. Absari  
*Islamic Studies Program*

Rosalie Arcala Hall  
*Strategic Studies Program*

# Editorial Staff

Jhimeel P. Valencia  
Bryan Patrick Garcia  
*Copyeditors*

## Development Cluster

Annette O. Balaoing-Pelkmans  
*Program on Escaping the Middle-Income Trap: Chains for Change*

Antoinette R. Raquiza  
Julius Lustro  
*Political Economy Program*

Eduardo C. Tadem  
Maria Dulce Natividad  
*Program on Alternative Development*

Iris Thiele Isip-Tan  
*Program on Health Systems Development*

## New Programs

Maria Angeles O. Catelo  
*Food Security Program*

Weena S. Gera  
*Urban Studies Program*

Benjamin M. Vallejo, Jr.  
*Conservation and Biodiversity*

Rosalie Arcala Hall  
*Local and Regional Studies Network*

Alexa Samantha R. Hernandez  
*Editorial Assistant*

Mikaela Anna Cheska D. Orlino  
*Layout Artist*

## Get your policy papers published. Download open-access articles.

The Philippine Journal of Public Policy: Interdisciplinary Development Perspectives (PJPP), the annual peer-reviewed journal of the UP Center for Integrative and Development Studies (UP CIDS), welcomes submissions in the form of full-length policy-oriented manuscripts, book reviews, essays, and commentaries. The PJPP provides a multidisciplinary forum for examining contemporary social, cultural, economic, and political issues in the Philippines and elsewhere. Submissions are welcome year-round.

For more information, visit [cids.up.edu.ph](http://cids.up.edu.ph).  
All issues/articles of the PJPP can be downloaded for free.

## Get news and the latest publications.

Join our mailing list to get our publications delivered straight to your inbox! Also, you'll receive news of upcoming webinars and other updates.

[bit.ly/signup\\_cids](http://bit.ly/signup_cids)

## We need your feedback.

Have our publications been useful? Tell us what you think.

[bit.ly/dearcids](http://bit.ly/dearcids)



### UNIVERSITY OF THE PHILIPPINES CENTER FOR INTEGRATIVE AND DEVELOPMENT STUDIES

Lower Ground Floor, Ang Bahay ng Alumni, Magsaysay Avenue  
University of the Philippines Diliman, Quezon City 1101

**Telephone** (02) 8981-8500 loc. 4266 to 4268  
(02) 8426-0955

**Email** [cids@up.edu.ph](mailto:cids@up.edu.ph)  
[cidspublications@up.edu.ph](mailto:cidspublications@up.edu.ph)

**Website** [cids.up.edu.ph](http://cids.up.edu.ph)