

Discussing Tai O Village, a Hong Kongese fishing village where legacy policies endanger vernacular architecture that both policy strategy and architectural activism work to conserve.

Spatial agency practice in Tai O Village: colonial legacies and spatial-architectural approaches to collaborative urban futures

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This paper discusses architectural spatial agency practice within a collaborative living lab in Hong Kong. Living lab members work in Tai O Village, a historic fishing settlement on Lantau Island receiving increased attention due to remnants of pang uk vernacular housing there. The article presents the historical and policy context for ongoing collaborative casework conducted with stakeholders in Tai O. The first section presents Tai O Village's history in brief, from its contribution to Qing dynasty salt production, to its current issues with an ageing population, degrading building stock, and uncertain land tenure. The second section presents recent policy from the Civil Engineering and Development Department (CEDD) of the Government of the Hong Kong Special Administrative Region (Government or Hong Kong Government). These documents describe an inherently conflictual strategy for Tai O Village: infrastructure investment, research and development funding, and publicly funded tourism publicity to incentivise development growth that colonial legacy policies simultaneously constrain. The third section explores informal settlement land tenure in Hong Kong as a historical phenomenon. We present scholarship on colonial-era policy and censuses that contribute to the present dilemma in which, anticipating precedented clearance actions, stakeholders, and administrators must determine ways forward for informally developed settlements. The fourth section reviews squatter control and regularisation efforts in informal settlement improvement or regularisation projects elsewhere to contextualise these inherent dilemmas and suggest, as this article's thesis, that third sector and design-led efforts are applicable, interstitial methods to respond to such legacy problems. The fifth section presents our spatial agency living lab approach as experimentation within this thesis, meant to support a Collaborative Governance Regime (CGR) initiated in Tai O Village. The CGR works to build consensus and create experimental solutions for Tai O's ongoing development transition. Section six presents workshop and survey responses solicited in Tai O before describing three ongoing living lab initiatives: a pedestrian traffic monitoring project, a proposed

renovation to an existing cultural showroom, and an alternative proposal for a Government-developed community hall. Each initiative elaborates specific design and architectural challenges related to collaborative spatial agency practice, including revisions to previously published concepts addressing socio-technical dimensions of design activism. As a contribution to architectural scholarship, this article summarises unique interactions between history, policy, economics, and demography that engendered Tai O's situation. Subsequently the article presents casework reflecting on specific experimental projects, and architecture's role in the living lab approach to spatial agency conflict.

Tai O's history: long-standing development and vernacular architecture

This section briefly discusses Tai O's history to present two premises. First, we suggest Tai O is a long-standing, incrementally developed settlement. We present this abridged history as context, and to compare with other conflicts over informal settlements related to postwar immigration into Hong Kong. This history precipitated the famous stilt houses in Tai O. These light wooden structures evolved from boats into over-water housing, which architect Gary Yeung divided into four generations of vernacular architecture.¹ This section discusses pang uk architecture from Yeung's study, field review, and other sources to describe its salient characteristics and present condition. Second, we present Tai O's stilt houses as historically significant vernacular architecture, a view the Government appears to share despite its ambivalent strategy for Tai O. This section thereby presents Tai O's historical development and architecture to contextualise present-day policy contradictions, anxieties, and responding spatial agency casework.

Primary documents of Tai O's history come from artefact summaries in the Tai O Rural Committee Historical and Cultural Showroom (Showroom), the Tai O Concern Group for Tai O's Culture and Antiquities (Concern Group), a history by prominent village stakeholder Wai King Wong, and other historical sources.² These sources date Tai O's



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1, 2 Stilt houses in Tai O Village in 1972 and the present day.

settlement to the Qing Dynasty period (1644–1912). During this time, salt production pans in the Village contributed to the Dynastic salt monopoly, connecting Tai O to national trade, regional commerce, and Qing naval power projection.³ Before colonisation in 1898 moved Hong Kong's commercial centre to Hong Kong Island and Kowloon, Tai O Village was the largest settlement on Lantau Island, and its situation and resources positioned it as a major commercial centre. The Village's location supported its role in colonial anti-piracy policing as well. Tai O is visibly larger in historic aerial images, suggesting gradual population loss confirmed in Wong's history, census data, and feedback from local stakeholders. Despite this decline in prominence, Tai O is evidently a settlement with significant history, even though its most famous districts are constructed of 'surveyed squatter structures'. We use this term despite its pejorative connotations to follow the Hong Kong Government's practice and consequences of the designation, as elaborated below.

Throughout this history, stilt houses remain significant components of Tai O's development [1, 2]. Yeung's publication in the Hong Kong Institute of Architects' online resource journal and his subsequent book provides a thorough documentation of the houses, their features, and their evolution. Stilt houses evolved from sampan boats elevated over the river estuary to house fishermen's families during overnight outings. This contributed to the semi-cylindrical roofline of early stilt houses, which evolved into single- and multistorey low slope roof designs over time. The stilt houses' later evolutions took place during the British colonial period, when the colonial government designated pang uk as surveyed squatter structures in the 1982 and 1984 Squatter Structure and Occupation censuses.⁴ Despite this, cultural anthropology and stilt houses' long-standing

presence in Tai O Village and evolution through several forms allows us to credibly present pang uk as vernacular architecture of historic significance.⁵ Simultaneously, the colonial legacy of their registration as surveyed squatter structures creates considerable conflict in the present. The next section reviews this current state, and the considerable dilemmas that Government strategy creates for Tai O.

Tai O's present: vulnerabilities and conflicts

Tai O's stilt houses' prevailing condition is vulnerability to environmental disasters, climate change, and abandonment. Government policy arguably exacerbates this vulnerability by constraining stilt house renovation or redevelopment under the Squatter Control Policy on Surveyed Squatter Structures (Squatter Control Policy).⁶ Simultaneously, other policies and initiatives arrange strategy and incentives for Tai O's development that create complex developmental conflicts. This section describes these conditions as contemporary context for the literature review and casework presented in later sections.

Stilt house districts face increasing, recent threats from flood, storm, and fire, as well as lack of sewerage in numerous cases.⁷ Though the Government has issued an emergency shelter and relocation plan, residents have protested the lack of planning to reduce the stilt houses' vulnerability.⁸ Third-sector projects contribute significantly to Tai O's response to environmental hazards, including a climate change awareness and preparation project, and activist organisations' work to support stilt house residents.⁹ At the level of architecture, pang uk buildings remain evidently vulnerable. Along with their coastal location, they are built of combustible materials, lack fire suppression, are densely built, and often house propane canister-fuelled cooking stoves [3]. Still, our



3 The results of a stilt house fire in 2020.

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4 A stilt house under construction as of 2020, showing recent construction technology improvements like tongue-and-groove jointed cladding and a moisture barrier within the wall section.

previous research documented evidence of resident efforts to rebuild pang uk with technologies that address or mitigate these problems. We documented reinforced concrete slab construction, increased use of gypsum wallboard for fire separation, increased insulation values in wall construction, panelised wall sections, and other technological progressions in recent pang uk construction in Tai O [4]. Further and most critically, we documented stoppages of these same works.¹⁰ The Lands Department (LD) enforces work stoppages on basis of the SCPSSS, which states no renovation or improvement may alter surveyed squatter structures, including pang uk, from their state documented in 1982 without prior permission. Along with this constraint, recent press releases state the Government's intention to let stilt houses subside to, 'natural wastage', rather than intervene in Tai O's decline.¹¹

This is despite a recently intensified strategy for Tai O and Lantau Island's development. The Sustainable Lantau Blueprint (SLB) provides planning and policy for development in Lantau, framed around environmental and cultural conservation and included a 'Tai O Nature and Cultural Heritage District'.¹² Estimated improvement works investment by the Civil Engineering and Development Department is HK \$1.09 billion in Tai O (Approximately US \$141 million).¹³ The Government added to this investment with the creation of the Lantau Conservation Fund (LCF), an initiative announced in the 2018 Legislative Council Policy Address designed to 'pursue minor local improvement works in villages and communities in support of conservation initiatives'.¹⁴ The HK\$1 billion fund prioritises projects in Tai O Village from which, in the interest of transparency, we have

previously solicited research funding.¹⁵ This investment also postdates the publicly funded Hong Kong Tourism Board's online promotion, which mentions pang uk houses and the 'fast-disappearing way of life' they support.¹⁶

We suggest that the Hong Kong Government's stance towards Tai O Village, its residents, and their houses creates conflict and a sustained impasse for Tai O. Support for tourism development arguably incentivises investment in Tai O, through real estate development or otherwise. Simultaneously, colonial legacy policies restrict pang uk owners' participation in this development change through, for example, conversion of stilt houses into home stays or even renovation for personal use. This creates inequity and a commodification of Tai O's socio-physical assets through the 'revitalisation', narrative presented by Dryland and Syed (2010),¹⁷ and as we have suggested before.¹⁸ Viewed historically, and in light of literature on land tenure regularisation and 'slum upgrading' projects, we contend further that, first, this problem is a legacy of colonial policy in Hong Kong; that, as in many informal settlements, dilemmas between Government enforcement discretion and potential opportunism increase the problem's complexity; and that resolution to the situation could most likely emerge in part from individual or third-sector initiatives. We discuss these arguments in the following sections.

Colonial policies and legacy: land tenure conflict in Hong Kong

This section discusses land tenure conflicts in Hong Kong caused by policy conditions during the colonial and subsequent periods, as accounted in three authors' work: Alan Smart,¹⁹ Michelle Huang,²⁰ and Alan Chun.²¹ It then returns to scholarship on Tai O, specifically via Khun's writing.²² This discussion contextualises Tai O Village's situation within legacy policy for informal settlements, conflicts caused thereby, and extrapolation of those conflicts into narratives of contested space in Hong Kong, which background Tai O's situation. This section proposes that conditions in Tai O and postwar informal settlements in Hong Kong share their genesis in colonial policy and that Tai O's situation continues historic, conflictual resettlement narratives. Further, we submit that given the history presented, resolution of Tai O's situation through Government policy change alone is unlikely.

Smart published considerably on land tenure and squatter clearance policies in Hong Kong.²³ He describes Hong Kongese squatter settlements' placement in, '... a regulatory regime based on repression alternating with neglect',²⁴ tolerating informal settlements until they impede other commercial or public development before reverting to demolition and resident resettlement. Smart connects this pattern to Hong Kong's public housing programmes, begun in part to resettle displaced squatters first censused in the 1982 Squatter Control Survey and 1984 Squatter Occupancy Survey. These Surveys contribute the term, 'surveyed squatter structure', and associated restrictions discussed above

and, Smart argues, initiated the clearance-and-resettlement pattern continued since the late twentieth century.²⁴ The original basis for all clearance actions come from colonial-era policies, including *An Ordinance to Make Provision with Respect to Squatting on Crown Lands* established in 1890,²⁵ the New Territories Ordinance,²⁶ and the Crown Lands Resumption Ordinance.²⁷ The Hong Kong Government transitioned these policies after 1997 via the Adaption of Laws (Crown Land) Ordinance.²⁸ In effect, land tenure rights descend exclusively from the Government in Hong Kong, as they did from the Crown in the colonial period. This designates informal settlement occupants not paying government lease rates as 'squatters', subject to clearance for various planning and development ends.

Smart extends his documentation of informal settlements like Diamond Hill and Shek Kip Mei into a policy and enforcement pattern alluded to in spatial conflict narratives written about land tenure in Hong Kong. Huang's book is among publications that note squatter clearances' role in spatial inequality in Hong Kong and other Asian cities, which she frames as a symptom of 'binary' urban globalisation and economic growth phenomena. Huang extends this term and concept from Saskia Sassen,²⁹ suggesting that uneven growth between urban centres and urban peripheries, each with their respective global or local populations, construct a spatial conflict narrative between 'global' economic growth and defensively oriented 'local' contexts. While Sassen later discussed how capital liquidity breaks down such, 'container categories',³⁰ we can extrapolate from both Smart and Huang's writing to Tai O Village's situation, and its placement within a regional strategy for 'Asia's World City'. The Government places its strategy for Tai O in a cultural conservation framework, but this discussion inevitably touches on stilt houses as an exploitable resource. This statement is revealing:

*In view of the traits of Tai O stilt houses, the Government plans to explore in future whether the proposed Lantau Conservation Fund can be tapped to enable stilt houses returned to the Government to be used for purposes benefiting the community instead of being demolished.*³¹

Though distinct in its development pattern from other historical settlements in Hong Kong, Tai O Village arguably fits within Smart's pattern of tolerance, neglect, and resumption as a distinct permutation. Clearance may in this case take an alternative form of property transfer, with any possibility of *relieving repression*, through land tenure regularisation or otherwise, dismissed in the summary statement, 'The aforesaid policies [the Squatter Control Policy] on licensed structures and surveyed squatter structures are applicable to the entire [sic] Hong Kong.'³²

However, scholarship on spatial conflict narratives' coherence seems particularly complex viewed considering Alan Chun's book on historic land policy, especially when conceived of as *land reform*, in Hong Kong. An evolution of the global city

premise is that financial liquidity and commerce complexify any global/local dichotomy, and Chun's book describes previous examples Hong Kong. To abridge Chun's findings, he describes colonial administrators' fundamental misunderstanding of land ownership, rental agreements, and Chinese family descent practices. Unintended consequences of colonial policy meant to protect Chinese land rights through land reform are especially relevant. The colonial government enacted the Small House Policy,³³ in the context of repressive and racist planning,³⁴ to guarantee 'indigenous' occupation of Crown Land. However, according to Chun:

While the concessionary grants of building land were made to indigenous villagers in order to guarantee their inalienable customary right to live on the land, a principle that had been vehemently fought over in the prewar period ever since colonial occupation of the New Territories, villagers responded by doing to the land what was least expected of them. They sold it to the highest bidder.³⁵

During the colonial period leasing, subleasing, and paid transfer of 'small house lots', a land designation designed as a prop for subsistence land use, became a common commercial practice that remains contentious.³⁶ Chun's writing and the present condition of the small house policy suggests that contemporary anxiety over, 'rent-seeking behaviour',³⁷ in form of financial windfalls or intensified development, and subsequent development change could explain the Government's reticence to revise tenure policies. This is perhaps a charitable interpretation given Smart's findings.

Kuah and Liu's (2016) insight on heritage conservation actions in Asian cities also offers a related explanation:

[Heritage conservation actions have been taken] in Hong Kong's search for a new social status in competition with other Asian societies. When many societies develop at a rapid pace and are wealthy, there is a need among them to search for new yardsticks to differentiate themselves from each other. Conservation and preservation have become a new indicator of successful modern and urbane metropolis where being cultural is now fashionable and trendy [...] Hence, historical monuments and various forms of real and imaginary heritage have become a form of cultural capital for the state or community to show off to the world their cultural roots, thereby gaining social prestige.³⁸

In Kuah and Liu's review of conditions in Tai O, they pointedly argue that this approach selecting, 'bits and pieces of culture [to dress] as heritage ... [introduces the public] to a truncated culture and history of the Hong Kong community.'³⁹ Khun and Liu frame the impasse in Tai O, therefore, as originated through policies left in place by simultaneous anxiety over development change that could diminish socially or culturally valuable resources, and desire to exploit those resources for regional standing.

We suggest, and the Government appear to agree, that this conflictual policy environment will likely

not see resolution through enforcement or policy change on the part of the Government, whether due to inertia, intention to repossess land in Tai O, or anxiety over potential opportunism. As we discuss in the last sections of the article, our living lab approach seeks experimental solutions for Tai O Village in the absence of this change. First, however, we review selected informal regularisation and upgrading efforts in the next section to ask how some situations like Tai O's seek resolution. We ask: is there precedent for changing policy and enforcement practice to negotiate entangled, complex legacy problems in remaining informal settlements? What are the relative advantages of different approaches, and how might they be applicable in Tai O Village?

Precedent: informal settlement regularisation and improvement review

This section reviews informal settlement scholarship from diverse, though not exhaustive, points of view to ask a second question related to those above: what considerations are made and what means are applied in informal settlement regularisation projects? Given the Government's refusal to change legacy policies that constrain informal settlement development in Hong Kong, this section presents consequences from other regularisation and improvement efforts to contextualise Tai O's situation. Herbert Werlin's scholarship, favela regularisation precedent from Brazil, experiences in South Africa, and recent literature on community land trusts (CLTs) suggest several approaches applicable in Hong Kong, each requiring negotiation and co-productive investment. We discuss possible implications for each precedent upon Tai O Village at the conclusion of this section.

Herbert Werlin's is a critical voice regarding 'slum upgrading' projects in his review of World Bank-funded physical infrastructure projects. Werlin addresses a financial provisioning model from "development from below" literature, placing himself in a semi-reactionary position against literature written from three interrelated viewpoints: 'a benevolent view of communities; a hostile view of bureaucracies; and, a favourable view of participatory and humanistic management, as against scientific and coercive administration ...'.⁴⁰ Though his critique is penetrating, Werlin confines it within questions of project sustainability and effectiveness. The four sections of his article describe how lack of secure land tenure, local administrative capacity, and 'cost recovery' through compensatory taxation jeopardise the long-term success of informal settlement upgrading. Werlin later characterises Hernando de Soto's recommendations for Lima, Peru as, 'not "less government" but "better government"', concluding that, 'there is a tendency to avoid such difficult problems as land tenure, cost recovery, and community responsibility', in slum upgrading works.⁴¹ Finally, he refers to the steps for regularising informal settlements from *Dialogue* by Vitoria, Williams, and Didier:

- (1) *appropriate site selection;*
- (2) *acquisition of the land through negotiated sale, donation, exchange, or expropriation;*
- (3) *establishing which households are eligible for lots;*
- (4) *tagging of qualified structures;*
- (5) *protecting the rights of both structure owners and renters;*
- (6) *establishing tenure arrangements;*
- (7) *determining and costing on-plot and on-site services;*
- (8) *providing economic assistance; and*
- (9) *negotiating cost-recovery and maintenance responsibilities to be undertaken by beneficiaries.*⁴²

He finds that slum improvement projects, without careful consideration for land acquisition, secure tenure, maintenance costs, and local participation, are less sustainable and effective over time.

Eugenie Birch, Shahana Chattaraj, and Susan Wachter's first chapter from *Slums: How Real Estate Markets Work* recounts governmental tenure regularisation efforts in Latin America, and particularly focuses on demographic or economic changes consequent therefrom. They study regularisation efforts initiated from, 'The City Statute (2002) [...] that governs land access and equity in Brazilian cities',⁴³ and is 'meant to ensure democratic city management and prioritise the "social function" of land, defined by how land is used, over its commercial value'.⁴⁴ From their findings on a regularisation programme for public land in Osasco, they deliver the following summary under the heading, 'What Were the Outcomes of Regularization?':

- (1) *Regularization programmes they reviewed work to accommodate households with incomes from zero to three times the minimum wage. Among this population, Regularization improved housing conditions but did not increase housing supply.*
- (2) *Regularization programmes studied provided occupation rights, not ownership rights.*
- (3) *Renting tenants were the most vulnerable group during the Regularization project.*
- (4) *Regularization project areas saw new households move in after regularisation, but households' motivations for moving in or out did not relate to an increase in the price of housing. This suggests gentrification did not occur in the favelas studied.*
- (5) *Inhabitants of Regularization project areas have a strong sense of community and state regularisation's major achievement as, 'improvement of the ambience of the settlement'.*⁴⁵

Finally, they state that a major failing of the project was lack of integration between juridical tools used to regularise the favela and implementation of environmental or infrastructural works, degrading public lands that once accommodated leisure spaces.

In South Africa, many informal settlements are legacies of Apartheid spatial planning. There have been efforts to clear or upgrade them, but they continue as a reality for much of the country's population.⁴⁶ Cirolia, Görgens, Van Donk, Smit, and Drimie note that while some literature frames informal settlements as 'disjointed modernisation', in which urban economic institutional development cannot match urban population growth, they also

manifest structural exclusion and exploitation. They write, 'Although exclusionary planning systems of the Global South were usually set up by colonial governments, postcolonial governments have generally enthusiastically maintained them.'⁴⁷

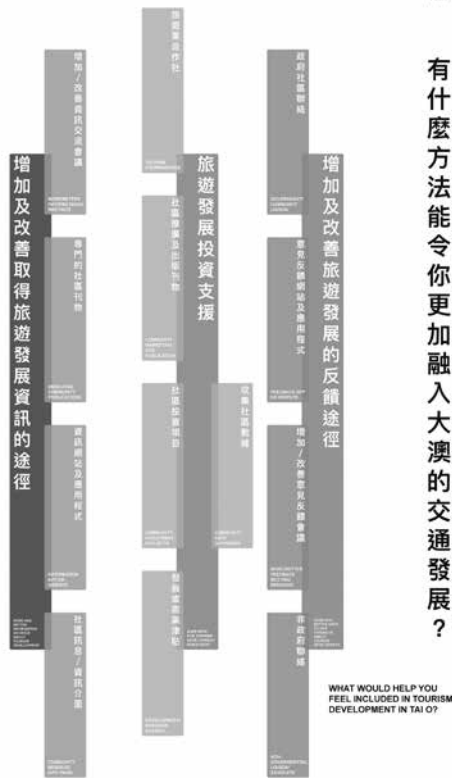
Other scholars and practitioners support this proposed disjuncture between informal settlement upgrading policy and its implementation in South Africa.⁴⁸ Smit writes, 'the rhetoric of participatory, integrated and incremental informal settlement upgrading has collided with perspectives that strongly favour slum clearance and with a policy that focuses heavily on the [subsidisation] of top structures.'⁴⁹ The policy position in South Africa is, however, shifting. In November 2020, Lindiwe Sisulu, Minister of Human Settlements, Water, and Sanitation admitted current policy was unsustainable. She stated that her ministry adopted a new model focused on delivering serviced sites and tenure security, providing top structures only to the extremely needy.⁵⁰

Cirolia and others note that service delivery protests in informal settlements are not necessarily about service delivery as such, but more about community dissatisfaction with governance. They argue that building trust through transparency is essential, though it may lead to conflict. They further argue that upgrading efforts can reveal opposing viewpoints as a generative potential, uncovering agendas at play within and without informal communities.⁵¹ Fox writes:

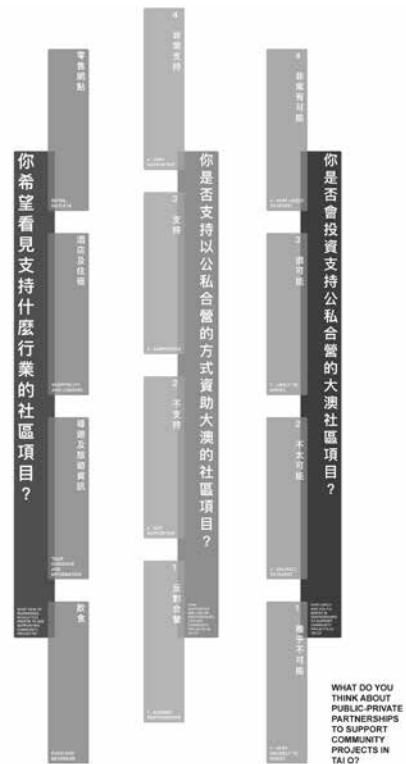
*[...] the ad hoc governance arrangements and infrastructure deficiencies bequeathed by colonial administrations created opportunities for postcolonial political and economic entrepreneurs to cultivate instrumental patron-client networks and exploit rent-seeking opportunities. As a result, a constellation of 'status quo' interest groups have emerged in the region. Put simply, urban underdevelopment has proven politically and economically beneficial to a wide range of actors in African cities.*⁵²

Minister Sisulu corroborates this statement saying some opportunists, 'benefit from shackfarming'⁵³ and have perfected the art, making it very difficult to break the back of informality'. She also mentions that despite eight-year restrictions on resale of state-supplied housing, many people sell their houses shortly after occupation to return to informal settlements.⁵⁴

The perceived need for relocation remains a challenge in South Africa, perpetuating social and spatial marginalisation of the poor. Smit writes that regularisation and relocation can markedly reduce population density, even if regularised areas redensify through infill.⁵⁵ Andy Bolnick, Director of the non-profit organisation Ikhayalami is a practising specialist in informal settlement upgrading in South Africa. She laments the engineering-driven approach to upgrading, which she believes increases the prevalence of relocation. She describes the 'myth of relocation', and argues that a human-centred upgrading approach would not require relocation actions. Bolnick and others suggest that partnerships between government administrators, NGOs, and community members



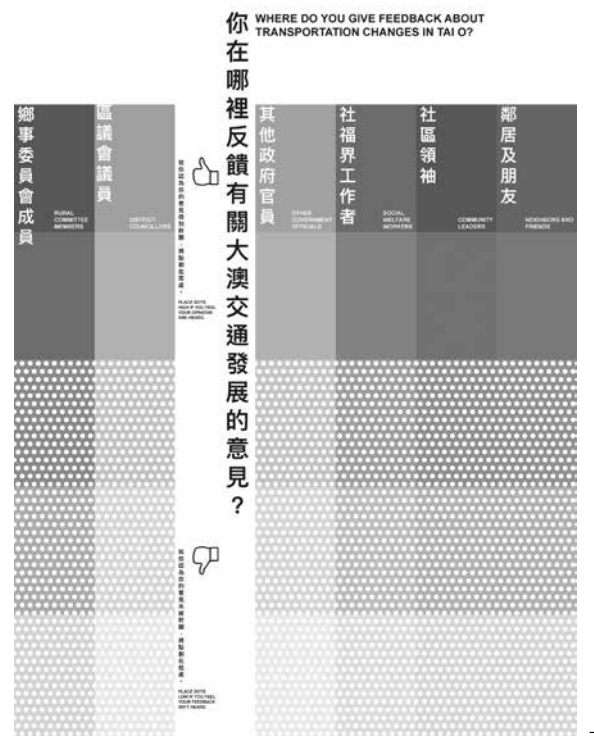
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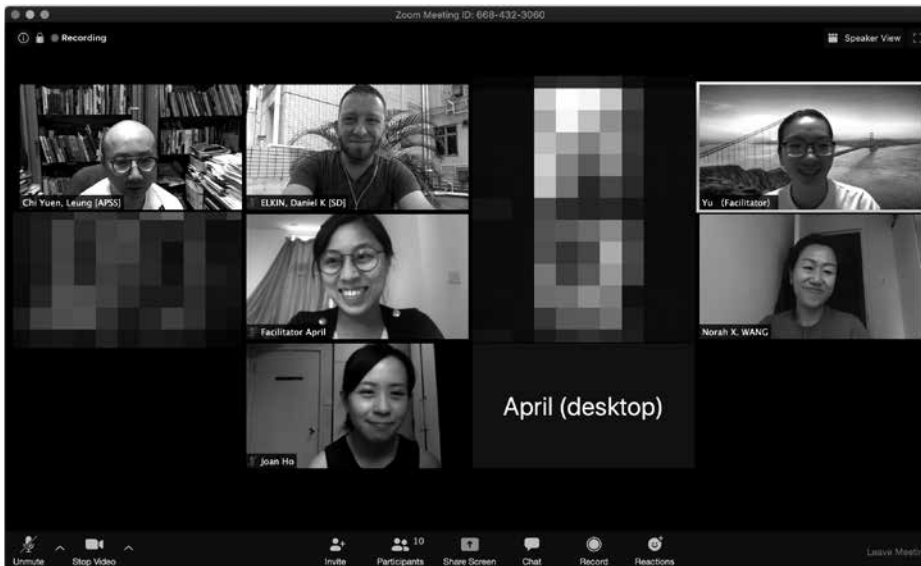
could co-produce responses.⁵⁶ Swilling and others write, ‘The immense creative energies of informal settlers, a key facet of their survival in the absence of formalised housing supply, are negated through a state-dominated approach.’ They argue that technical solutions and policy are not the only considerations for informal settlement upgrading, but that knowledge development with communities can generate solutions from within.⁵⁷

An emergent approach to informal settlement regularisation and improvement is the implementation of Community Land Trusts (CLTs). As Basile and Ehlenz describe in their article ‘Examining Responses to Informality in the Global South: A Framework for Community Land Trusts and Informal Settlements’, CLTs are a form of Shared Equity Ownership, which divides residential land ownership to, ‘grant improvement rights to a homeowner and land title to a non-profit steward on behalf of the community’.⁵⁸ Their article also includes useful summaries of three common responses to informal development, namely Mass Social Housing, Upgrading, and Land Titling, the first two of which have been implemented in Tai O with mixed results.⁵⁹ Basile and Ehlenz describe cases in Kenya and Puerto Rico in which CLTs were implemented. They describe results in a combined strategy of upgrading and CLT implementation in Tanzania-Bondeni, Kenya as, ‘mixed’, noting it, ‘strengthened neighbourhood stability and social networks by preventing post-project displacement’, a result arguably preferable for any change in Tai O. Tanzania-Bondeni also experienced, however, ‘persistent’ administrative difficulties and the



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5-7 Workshop materials developed for collaboration with stakeholders in Tai O Village.



8 Screenshots from online focus groups.

9 Researchers meeting with the Tai O Village Rural Committee.

essential necessity of 'local government support' for implementation success.⁶⁰

In Caño Martín Peña (CMP), Puerto Rico, they describe contested success of a CLT project prompted by upgrading initiatives and flooding threats. After initial political setbacks, the CMP CLT was successful in achieving political commitment to protecting the rights of CLT members to manage its land.⁶¹ Basile and Ehlenz then provide a framework comparing the CLT-implementation approach to other regularisation strategies, noting its advantages in promoting outcomes including: immediate affordability; long-term affordability and security; infrastructure improvement; maintenance of existing physical and social structures; potential for wealth building and reduction of poverty levels; quality of life improvement; and community control.⁶² They summarise steps for implementing CLTs, in order of precedence, as:

- (1) [Developing] *Community willingness, commitment, and agreement.*
- (2) [Obtaining] *Presence of a community steward and/or leaders.*
- (3) *Acquisition of land.*
- (4) [Obtaining] *Support of local government and public support.*
- (5) [Obtaining] *Third party support.*⁶³

Comparisons between CLT implementation and upgrading initiative implementation steps illustrate differences with older approaches, particularly the position of land acquisition and/or site selection. The viability CLTs show in supporting new infrastructure could be particularly appealing for Tai O's situation from government administrators' point of view, given the attention paid to ongoing physical infrastructure issues in the Village. Basile and Ehlenz write that CLTs offer 'opportunities to adopt new building technologies ... [by enabling] a non-profit [organisation] to educate and offer technological resources, while enabling residents to deploy sustainable building technologies ... in a cost-effective way'.⁶⁴ By Basile and Ehlenz's account, the



CLT approach offers a viable alternative to informal settlement regularisation.

Reviewing this literature both emphasises Tai O Village's distinct situation and suggests a potential way forward. Following Werlin's framework, Tai O is caught between steps four and six of upgrading works. Given that the Government lacks the political will to entertain regularisation, the stilt houses remain in uncertain tenure conditions with tolerated occupancy, but not ownership. Additionally, as documented in Smart's scholarship, this is a reversible concession subject to the Government's frequent 'land resumption' actions. Arguably this will continue to make cost recovery for investments difficult, as stilt house owners pay minimal or no Government lease rates. The ever-present sewerage issue in Tai O is a salient example: as stilt houses were originally unsewered, the Government invested in sewer main extensions to stilt house districts on several occasions to reduce contamination to the river and seashore. However, as residents must bear the cost to connect domestic drainage lines to the new infrastructure, many stilt houses continue to discharge sewage into the estuary while this expense remains only partially amortised.

Assuming the Government acts in good faith, and that Smart's findings evidence a pattern rather than



10, 11 The location map and in-situ installation of pedestrian traffic monitoring equipment in Tai O Village.

an intentional plan, Birch and other's findings for post-regularisation change may allay some anxieties over gentrification and undesirable development change resulting from tenure regularisation. Demographics in Tai O are, however, distinct from Latin American cases: the population is disproportionately elderly, and poverty is generally less of a concern. Social workers working in Tai O do not characterise stilt house residents as urban poor, citing economic support from family in metropolitan Hong Kong and elsewhere. As in South Africa researchers, activists, and administrators must recognise any intervention creates opportunities and threats such that rent seeking and opportunism remain concerns. Precedent also suggests these are best handled through local management, for which a CLT may be well suited. While the potential for a CLT-driven approach to Tai O's situation is promising, the persistent challenge of government support remains: titling is a component of CLT implementation, and stilt house residents in Tai O continue to occupy their housing without legal title.

We suggest two sets of untested questions that surround the works below, and which sit firmly within this impasse as collaborative responses, not solutions. First, does political will exist among stilt house residents to propose a change of their land tenure status to the Government, especially within the boundaries of a CLT designed to negotiate development conflicts? How would government administrators respond to such a proposal? Would the Government tolerate extra-judicial structures for collective stewardship of the stilt houses, given their status as privately owned, collectively appreciated heritage? With research on these questions forthcoming, the final section of this article discusses our ongoing collaborative governance casework in Tai O Village.



Casework: spatial agency living lab projects

This section presents casework from our spatial agency living lab conducted in Tai O Village starting in 2017. Over four years of work, we built a *spatial agency living lab* framework to respond to the complex conditions in Tai O presented above. From Awan, Schneider, and Till,⁶⁵ we orient our work towards *spatial*, sometimes only peripherally *architectural*, applications for design, with

implications for individual and collective control over space centralised in our process. We discuss our team as a living lab following Keyson and other's standard of an iterative, collaborative, and intergovernmental research group seeking collaborative solutions.⁶⁶ Our aim in the following casework is to collaboratively seek consensus on issues in Tai O Village, to support capacity to address them, and structure interactions for their sustained resolution, similar to establishing a collaborative governance regime.⁶⁷ We discuss initial stakeholder workshops and their findings, a pedestrian traffic monitoring project, a scheme for a private facility renovation, and an alternative scheme for a planned Government facility.

In spring 2019, we collaborated with the Tai O YWCA Community Work Office (YWCA) staff to stage three themed stakeholder focus groups. We selected transportation, tourism development, and community project themes on the advice of YWCA project leader Leslie Ho, our community liaison, and the projected implementation of the SLB [5–7]. The escalating COVID-19 pandemic moved focus groups online and significantly reduced our sample size for data collection [8]. This setback restricted our response data to more active stakeholders, as participants were activists or otherwise involved in third-sector work in Tai O Village. Responses to pre-meeting questionnaires led to discussion in each focus group, translated from Cantonese to English in summaries that support conclusions presented here. A significant subject of discussion was traffic

congestion in Tai O, especially on weekends and public holidays.⁶⁸ Participants discussed that increases in traffic to Tai O Village created anxiety over additional tourism development, particularly when traffic surges disrupted transport availability for commuting Village residents.

Based on this discussion, we proposed a pedestrian traffic monitoring project in Tai O Village, meant to quantify the level and variability of traffic over different days of the week and times of the year. With Mr Ho's help, we approached the Tai O Village Rural Committee (Rural Committee) in May 2020 for an introductory meeting, followed by a discussion with the chairman in September 2020, and a formal presentation in November 2020 [9]. We proposed to install six infrared passage gates throughout Tai O, positioned at intersections between Tai O's internal circulation and either regional infrastructure, or spatial transitions between parts of the Village [10, 11]. After discussion and a question-and-answer session, the Rural Committee approved the project in November with a recommendation for one additional monitoring site. We installed the first infrared gates in February and gathered data from the monitors on a weekly or bi-weekly basis. As shown in Table 1, the data resultant from this project allows us to quantify relative changes in traffic in Tai O between different days of the week, and between normal working days and public holidays. The data also show that some passage-points have significant differences between passage numbers into the Village versus out. The material tactics and politics of

Monitoring Location	On the Tai O River Bridge, mounted near the south side of the bridge 大澳涌橋的南側			All Locations		
Total Passages Recorded	1173773		Valid Data Points	248	4701692	
	Maximum Passages Recorded in One Day			Maximum Passages Recorded in One Day		
	Left		Right	Left		Right
	7675		5784	7675		7162
	Average Left Passages by Day	Average Right Passages by Day	Combined Average Passages by Day	Average Left Passages by Day	Average Right Passages by Day	Combined Average Passages by Day
星期一 Monday	3378.5	2974.1875	3176.34375	1422.364063	1301.654919	1362.009491
星期二 Tuesday	3267.692308	2819.846154	3043.769231	1334.090463	1218.207492	1276.148978
星期三 Wednesday	3197.473684	3005.210526	3101.342105	1408.095593	1315.294567	1361.69508
星期四 Thursday	3201.388889	2987.722222	3094.555556	1437.939356	1327.883847	1382.911602
星期五 Friday	3440.555556	3269.888889	3355.222222	1514.25872	1427.669589	1470.964155
星期六 Saturday	4391.588235	4103.705882	4247.647059	2004.912127	1891.808082	1948.360105
星期日 Sunday	4804.375	4232.625	4518.5	2171.470501	1943.443257	2057.456879
Ratio of Average Passages "Left" to "Right"	1.097822822	1.1	to	1	N/A	
Combined Average Passages Across All Days	3505.339989			1551.363756		

Table 1 Pedestrian traffic passage data from a monitor on the Tai O River Bridge (left) and in summation from all monitors (right) over the course of one year.



12–14 Exterior and interior views of the Showroom, showing current exhibits and the unused upper-level space.

this project are also distinct from a socio-technical perspective, as discussed below.

The same issues discussed in the workshops motivated the last two projects, which remain speculative. In presenting these, we stress that they are premises for discussion between agent collaborators, without which they remain incomplete.⁶⁹ First, we present three schemes for renovation of the Community Showroom, a building on Wing On Street that houses historical artefacts, community

wayfinding, and educational materials. The building is sited at a critical passage point from the Tai O bus terminus, where many Village residents and tourist visitors pass through an unnamed lane to Wing On Street and into the commercial district of the Village. The building is a former beverage and toy factory and was the one time the meeting place of the Rural Committee on the second floor. The Rural Committee permitted us to measure and photograph the building, from which we synthesised three

programming and predesign schemes [12–14]. Our predesign package presents three schematic layouts to repurpose this building into a tourist visitor centre [15, 16]. Our schemes for this facility would collect information on traffic passage numbers, collect tourist visitation survey responses, provide an organisation point for COVID screening and tour guidance, and distribute educational materials. The Rural Committee owns and maintains the facility, and we hope to present our predesign schemes to them in the future. For now, we suggest that this community facility could serve a significant role in creating data on tourist visitation as community knowledge, while responding to pandemic conditions.

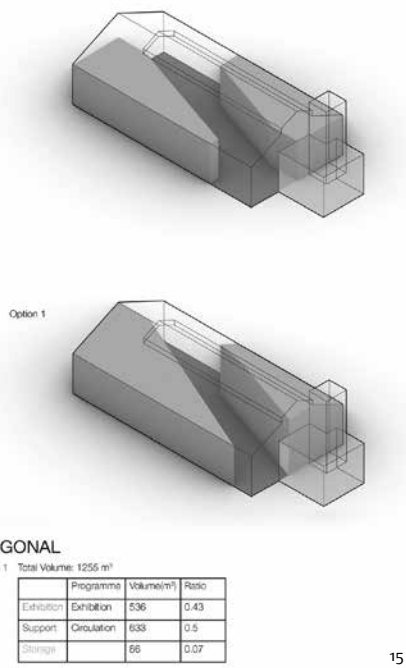
Secondly, we present an alternative programming and design scheme for the cultural event space planned near Yim Tin as part of the CEDD’s ongoing investment works. The CEDD plan three infrastructure or facility provisions for Tai O Village in the near future. Articulated footbridges connecting hiking paths at Po Chue Tam and Yim Tin are in design development and Departmental approval committees at present following public feedback sessions in Tai O. The CEDD plan to repurpose two parcels and a public open space near the future Yim Tin Bridge for additional private car parking, private coach parking, and construction of a public event space for Cantonese opera performances.

Based on our discussions with stakeholders in Tai O, we present the alternative spatial programming and design scheme shown (Figures 17, 18). The alternative scheme would serve the same purpose of

the anticipated event space but would additionally address concerns revealed through our work. To respond to a community activist report on climate change impacts in Tai O, the scheme proposes a refuge plinth elevated to one metre above the existing grade, with flood-barrier gates at each access point to the facility. The scheme adds a tourist education centre to regulate the flow of visitors into the Village and provide for COVID screening as long as required. The large public restroom shown is designed to serve tourist visitor influxes, but also to provide line-of-sight visibility between the flood refuge area and recommended coin laundry facility. The scheme also includes a new Rural Committee office. As the CEDD own the property, we submitted this plan drawing to their offices in June 2021. We emphasised the precedent for similar Community Hall facilities elsewhere in Hong Kong and sought further collaboration in Tai O. CEDD officers rejected the scheme, stating that the original design was already in gazetting and planning review.

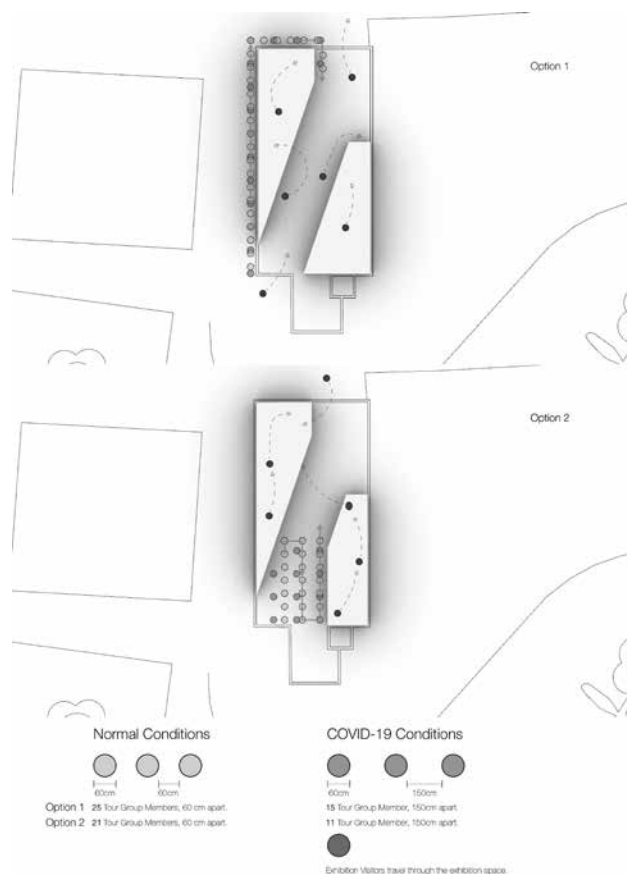
Discussion: agency, knowledge, and design

To discuss the casework above, we return to the foreword of Awan and other’s book, as well as previous writing by the first author, and precedents in the fourth section. Much of the introduction to *Spatial Agency* discusses power structures that underlie normative architectural practice. Awan and her co-authors elaborate conceptual dichotomies that direct their publication decisions, basing the choice of ‘spatial’ over ‘architectural’ on the implicit,

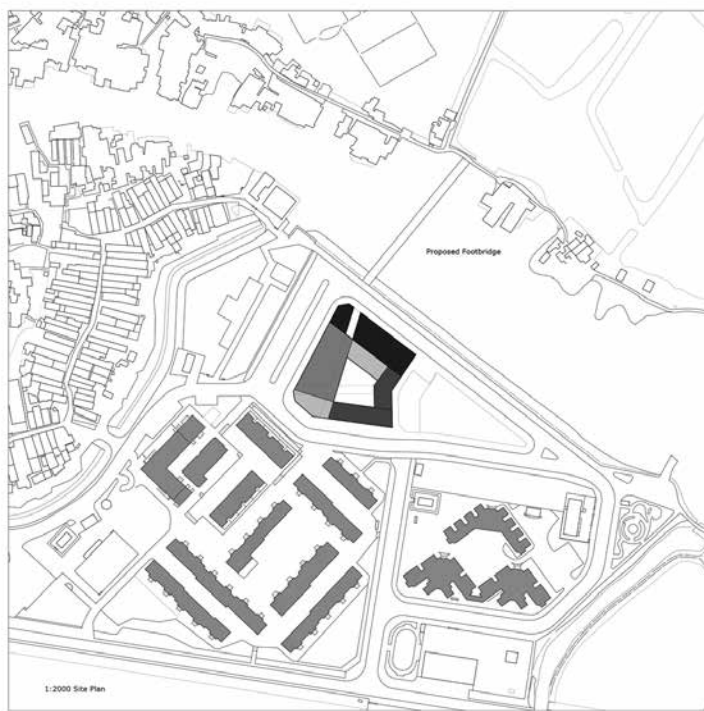


15

15, 16 Schematic drawings for a renovation to the Showroom.

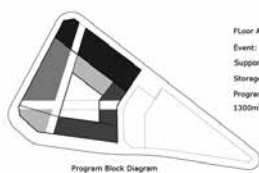


16



Peripheral (A)

■ Event ■ Support ■ Storage



Floor Area of Program Block
 Event: 628m²
 Support: 332m²
 Storage: 340m²
 Program Block Total
 1300m²



Outdoor Area
 236m²
 Circulation Path Area
 560m²

16

17

normative distinctions the second term creates. They propose acknowledgement of other agencies as a restorative practice, which we intend to continue here as the work presented does not occur in a vacuum. As made abundantly clear at a public LCF briefing in 2019, Tai O benefits from numerous activists and non-governmental actors supporting critical geography, tour guidance, education, and conservation work in the Village. We acknowledge that our work is among these efforts, facilitated and made visible by our positions of institutional, representational, and economic power.

We designed the pedestrian traffic monitoring project to respond to these disparities as well as possible, and to engage with conflicts in urban knowledge production that emerged early in the process. Before proposing the project to the Rural Committee, Mr Ho shared our concerns that the project implied spatial surveillance and policing, an increasingly present anxiety after protests in Hong Kong throughout 2019. Based on these concerns, we designed the pedestrian monitoring project around rudimentary – in the field of remote sensing – technology. The infrared monitoring gates we used are off-the-shelf consumer electronics with a 3D-printed mounting and weatherproofing enclosure. Unlike more sophisticated traffic monitors, they do not connect to networks and, since they do not use optical or thermal feeds, cannot distinguish between passing persons and passing objects. Researchers must return to monitoring sites to collect data, and these data reflect *relative*, not exact, passage numbers. Interestingly, a guest to the Rural Committee discussion meeting questioned this technological choice, asking if using phone

PLANNED YIM TIN FOOTBRIDGE

17, 18 Schematic plan drawings for an alternative Yim Tin Event Space scheme.



Tai O Community Hall

- 1. Reception
- 2. Presentation Room
- 3. Souvenir Shop
- 4. Dressing Room
- 5. Rehearsal Room
- 6. Main Stage
- 7. Theater Storage
- 8. Universal Toilet Cubicle
- 9. Staff Washroom
- 10. Lobby and Pump Room
- 11. Office
- 12. Outdoor Auditorium and Refuge Area



18

positioning data to record traffic passages was more appropriate.

This raises significant questions on the production of urban knowledge, and returns to a premise termed ‘camouflage’, in an article by the first author published in 2018, which refers to the implications for both knowledge itself and researchers’ use of it in urban contexts.⁷⁰ In short, technological choices and implementation tactics make trade-offs between data veracity, data availability, transparency, and privacy. Researchers that produce knowledge are therefore politically implicated. Camouflage, referred to in one register, places limits on researchers’ knowledge production and dissemination for ethical reasons. To revise this premise, we refer to Abdou Maliq Simone’s scholarship on urban space, density, and knowledge, in a September 2020 lecture.⁷¹ To paraphrase, Simone discussed urban density’s relationship to security, identity, and knowledge, and density’s tendency to obscure or collapse personal identities is a vital characteristic of urban life. Viewed through Michel Foucault’s premise of the *dispositif*,⁷² to produce knowledge on urbanity, whether through data or through mapping, is to produce power, through both data’s instrumentality and specification of privileged ontologies. The previously discussed camouflage premise is perhaps tautologically at the boundary of researchers’ and architects’ privilege and identity distinctions. Accepting this, we suggest that the monitoring project evidences how material tactics can foreground reciprocity in the science of urban environments. It is arguably a more optimistic and actionable position: it recommends that science and knowledge be ethically collaborative, and that

design’s physical facts – embodied energy, permitting requirements, and site impact – inflect its sociotechnical performance.

At present the two other design objects we have produced remain speculative and their performance largely demonstrative. Our Living Lab team have spoken with the Rural Committee about a tourist visitation centre in Tai O, and its potential to deal with ongoing pedestrian traffic surges and COVID-19 screening issues. Other research demands, and the pedestrian monitoring project kept us from presenting the pre-design schemes, but the Committee seem pleased with the outcome of the monitoring project and eager to continue working with us. The CEDD summarily rejected our alternative scheme for the Yim Tin facility on the basis that public feedback, workshopping and administrative planning for the project are already underway. A stakeholder we spoke with regarding the Yim Tin development told us that public feedback sessions on the project in the Village were generally positive, with most village residents present voicing support. A point of contention arose, however, when a government spokesperson stated the agency’s attention to local needs. This prompted villagers, in the stakeholder’s retelling, to reiterate their requests for additional shopping and sports facilities in Tai O, which have failed to materialise through recent investment. To characterise the dispositive surrounding development change in Tai O, especially as regards public feedback sessions and their efficacy in materialising desire, will require more research. In the meantime, our living lab continues its discourse with Tai O, its publics, and the negotiation of its complex reality.

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Competing interests

The authors declare none.

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