

# Ostrom's Collective-Action in Neighbourhood Public Open Space: Evidence from Sabah, Malaysia

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**Abstract:** *Within a housing estate, neighbourhood public open spaces (NPOS) are typically governed and managed under the state property regime. However, issues of NPOS overexploitation, mismanagement, and underinvestment persist, which consequently compromise community neighbourhood sustainability. Underpinned by Lin Ostrom's self-organising-and-governing collective action as a third alternative to addressing the neighbourhood commons issues, this paper examines the applicability and feasibility of the modified Ostrom eight design principles (DPs) to the institutional-social-physical system of local public open spaces (POS) and showcases how the current local state-owned common-pool-resource (CPR) can potentially be shifted to a polycentric common property club good NPOS. The residential Country Lease (CL) NPOS and Native Title (NT) NPOS of two districts, namely Kota Kinabalu and Penampang in Sabah, Malaysia, were chosen. The local institutional-social-NPOS performance is validated and assessed, using a systematic coding system that expresses the extent of absence and presence of DPs. The modified DPs are valid in curbing the existing local NPOS dilemmas as the former may minimise the enforcement costs and perverse incentives (opportunism) of the social-NPOS system, and they are likely to be feasibly adapted into the local NPOS system since the spatial and institutional attributes of some NPOS (especially CL NPOS) highly resemble and adhere to the modified DPs. This study provides awareness and insights to policymakers that the integrated, adaptive self-governing and organising collective action system is a potential solution, creating a liveable, resilient and sustainable community neighbourhood.*

**Keywords:** Ostrom's Design Principles; neighbourhood public open space; collective action; self-organising-and-governing system; sustainable community; Sabah, Malaysia

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## 1. Introduction

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Local governments provide many types of local public goods which are crucial to serving public purposes. One of them is public open spaces (POS), which are typically held as state (public) property, and governed by different institutions, laws and policies (Hanna, Folke & Maler, 1996). In the context of land use and spatial planning, Ling, Ho, Ali and Tu (2016) argue that an open space is not a straightforward concept as it is subject to a range of definitions, contexts, types, functions, and characteristics. Nevertheless, this paper focuses on the neighbourhood residential public open spaces (i.e., close-to-home civic spaces). A neighbourhood is defined as any area within a 10- to 15-minute walk of a user's home or within 500 m from the NPOS, covering community neighbourhood gardens, recreational spaces, playgrounds, and spaces with various active and passive activities and facilities/amenities. This neighbourhood (hometown) commons/common-pool-resource (Hess, 2008) can provide numerous ecosystem services and values, including economic, ecological and social benefits that require proper protection in terms of governance and management (Ling & Leng, 2018).

However, despite the long-familiar privatisation and coercive Leviathan centralisation (state) systems in governing the ownership, management, and consumption of common-pool-resource (CPR)-based neighbourhood public open spaces (NPOS), common dilemmas and negative externalities including underinvestment (mismanagement), overexploitation, and thus poor quality local residential common resources (e.g., vandalism, illegal conversion of land use, cleanliness and safety issues) are prevalent in developed and developing nations (Marzukhi & Abdul Karim, 2012; Nasution & Zahrah, 2017). This is true also for Sabah Malaysia (Ling & Leng, 2018) and is compromising the sustainability and quality of life of the local community.

Therefore, on top of incorporating the theories of Coase's property-rights and social costs (Coase, 1960), Buchanan's entrepreneurial club goods (Buchanan, 1965), Williamson's transaction costs and opportunism (Williamson, 2000) and the concept of Nelson's residential association institution (Nelson, 2002), this paper uses the under-studied decentralised self-governing-and-organising collective action by Lin Ostrom to address the local neighbourhood commons issues. Although a plethora of studies on Ostrom's collective action design principles<sup>1</sup> has been undertaken, they focus predominantly on the context of traditional commons (e.g., forestry, fisheries, and wildlife). Issues dealing with neighbourhood residential commons (i.e., NPOS), adopting and emphasising the frequency of Ostrom's self-governing eight design principles, and the presence/absence associated with potential state co-management, particularly in developing countries with a complex, unique institutional-social-ecological system, have not received adequate attention.

This study begins by theoretically and conceptually, demonstrating how the previous theories, concepts, and criteria contribute to sustainable commons governance and management, leading to neighbourhood resilience and sustainability. Next, I seek to understand the institutional-social-physical system of local NPOS and qualitatively assess the similarity, applicability, and feasibility of modified Ostrom's eight design principles (DPs) to the system, vitally addressing the questions of whether and how the current local state-owned common-pool-resource residential NPOS can institutionally and procedurally be aligned and shifted to the polycentric common property system, more precisely, to a state-local co-management regime.

This paper contributes to conventional landscape planning literature relating to NPOS governance and management within the context of urban housing from a new institutional economics perspective. Specifically, this study applies the modified Ostrom's institutional eight design principles for sustainable commons governance, which brings together and incorporates several theories and models in the analysis of adaptive neighbourhood commons governance. This study also contributes to global initiatives, namely the 11<sup>th</sup> Sustainable Development Goals 2030 and the New Urban Agenda, by focusing on providing safe, inclusive and quality green public spaces towards achieving sustainable cities and communities.

## **2. Literature Review**

### ***2.1 Ostrom's Common Property-based Collective Action Eight DPs for NPOS***

Designing and allocating suitable, effective property-rights structures (institutions) to govern and manage the public domain CPR is challenging. There is no direct and specific connection between types of property-rights regimes and successful resource management and protection as each property system has its weaknesses and limitations which sufficiently informs us that no resources can survive forever under the same regime. Thus, it is crucial for institutions (laws and a property-rights system) and an enforcement mechanism to be adaptive in a diverse, rapidly-changing social-ecological system (SES), particularly in response to the heterogeneity of social and biophysical features.

To effectively govern a CPR goods, a set of design principles (best practices/critical success factors) must be identified and used. In the case of self-governing design principles, many commons theorists' design principles affirmed and shared the similar DPs coined by the Nobel Laureate, Elinor Ostrom. That is Ostrom (1990) relied mainly on the hundreds of case studies of traditional commons (natural resources), systematically conducted in developing countries, to understand the institutional-social-biophysical

characteristics attributed to the commons and subsequently crafted the seminal eight DPs. She, however, asserted that dynamic, decentralised self-organising collective action under the common property regime (bottom-up approach)<sup>2</sup> could serve as a third policy alternative to averting the Hardinian tragedy of the commons (Hardin, 1968) and other common dilemmas.

Via the devolutionary and polycentric approach, it is believed to be more viable, efficient, robust, resilient, durable, stable, long-lasting, and equitable in addressing governance issues on resource provisioning and appropriation (Gari, Newton, Icely & Delgado-Serano, 2017). Such effectiveness and successfulness apply not only to the old commons, but are also relevant to new or urban commons (Foster & Laione, 2016). Albeit the latter is arguably emerging, particularly in the context of neighbourhood residential POS, covering community parks, playgrounds, and green spaces, which thus deserves more research, limited studies in the urban context have confidently hinted at the positive effects of collective action (Schauppenlehner-Kloyber & Penker, 2016; Ling & Leng, 2018).

For instance, such a common property regime on neighbourhood POS governance is mostly adopted in the UK. The property regime has helped achieve the desired, successful state of POS quality, contributing to low-carbon ('greener'), active-living environment and sustainable communities (Ling, Chau, Ho & Ali, 2018; Ling & Leng, 2018). This is because the locally formulated operational, collective rules and maintenance routines are more likely to reflect local aspirations, be more adaptively responsive to the local context, and benefit from a sense of ownership by local communities.

Hence, the above assertions of DPs in ensuring effective commons governance serve a basis for this study by analysing the potentiality and feasibility of collective action DPs in the local neighbourhood setting, although only at its conceptual level. In summary, below are the eight DPs or critical success factors coined by Ostrom (1990), contributing to the successfulness of collective action in governing commons (see Table 1):

**Table 1:** Successful Collective Action on Commons Using the Eight DPs of Elinor Ostrom

<b>Design Principles</b>	<b>Explanations</b>
1 <sup>st</sup> : Well-defined boundaries	Individuals who have rights to withdraw resource units from the CPR must be clearly defined, as must be the boundaries of the CPR itself. What (CPR) is governed, and who has rights to govern it? What rights should they have? This is the rule of the game.
2 <sup>nd</sup> : Congruence with the local condition and proportional equivalence between benefits and costs	Appropriation rules restricting the time, place, technology, and/or quantity of resource units are related to local conditions. That is, i) designing appropriate and equitable collective rules in local resource system context and (ii) the cost and benefits of management and use rules must be proportionate.

3 <sup>rd</sup> : Collective-choice arrangement	Most individuals (members) affected by the operational rules can participate in modifying and devising the operational rules (management and use).
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**Table 1:** (Continue)

<b>Design Principles</b>	<b>Explanations</b>
4 <sup>th</sup> : Monitoring	Effective monitoring on the (i) appropriators' resource use, (ii) managers (committee)' resource management and maintenance behaviour, and (iii) the resource condition is monitored by monitors who are part the members.
5 <sup>th</sup> : Graduated sanctions	Appropriators who violate operational rules are subject to graduated sanctions (depending on the seriousness and context of the offence) by other appropriators, officials accountable to these appropriators, or by both.
6 <sup>th</sup> : Conflict resolution mechanism	Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.
7 <sup>th</sup> : Minimal recognition of rights to organise	The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.
8 <sup>th</sup> : Nested/layered enterprise (polycentricity)	Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organised in multiple layers of nested enterprises (for CPRs that are parts of larger systems). For a larger/more complex SES or CPR, polycentric (many centres and authorities) governance is needed. Not only a vertical hierarchical linkage (subsidiarity principle), the horizontal linkage version is also applied.

Source: Ling (2017).

Ostrom's DPs emphasise the governance aspect, rather than the physical/resource and social aspects, covering trust, size of the group, leadership, moral sense, livelihood dependence on resources, allow for, and are subject to necessary modification and reformulation due to their incompleteness, simplicity, flexibility and generalisability. Adapting such DPs is vital in addressing more complex, detailed components, for example, questions dealing with what other potential, relevant elements to be considered for each principle and 'how to do it'.

This paper, nevertheless, espouses Quinn, Huby, Kiwasila and Lovett's (2007) approach by primarily sticking to the above original eight DPs. The expansion and reclassification/re-categorisation of DPs are necessary, whereby other scholars' expanded principles can be integrated into the original eight DPs (see Cox, Arnold & Tomas, 2010). For instance, incorporating Williamson's (2000) principle on low transaction costs and perverse incentives resulting in lower opportunistic behaviour likelihood into the Institutional Analysis and Development (IAD) framework, focusing on the three institutional-social-biophysical attributes, other relevant sub-principles, and concepts, theories posited by other scholars (Olson's, 1965

logic of collective action) can necessarily be integrated into the original Ostrom's DPs so long as they are relevant to the empirical studies setting (Agrawal, 2001; Cox et al., 2010). This enhances and evaluates the validity and successfulness of a self-organising regime (Wilson, Ostrom & Cox, 2013). In other words, this paper employs modified Ostrom's DPs (or modified DPs) in the neighbourhood POS context.

Among others, the following factors and principles (conditions) coupled with explanation should also be taken into account in the generic Ostrom DPs. Based on the IAD-based SES framework, for the **(i) community (social) attributes**, transaction costs may increase with group size and heterogeneity (asymmetry issues) in terms of set goal, expectation, information/knowledge, cultural belief system and experience; it is challenging to obtain consensus and effective cooperation due to communication/monitoring barriers and different individual intention, anticipation, and interest, that some of them may shirk their management duty and free ride (Olson, 1965). As Murphree (1993) observes, — "*... a communal resource management regime is enhanced if it is small enough (in membership size) for all members to be in occasional face-to-face contact, enforce conformity to rules through peer pressure, and has a long-standing collective identity*".

However, albeit the large size of a social group may negatively affect the trust and reciprocity of a community (less cooperation/less bonding), this condition sometimes received positive feedback, such as yielding additional resources (financially) (Ho & Gao, 2013). Likewise, on the mutual trust and leadership of the community, both of these elements that involve trust/social capital/social ties and experienced leaders (elites), act as hubs to organise and lead their people and should exist as they positively ease cooperation among the community. If communities own successful past experiences with such collective action regime, and they are interdependent, then it reduces transaction costs in resource management and cooperation.

Next, for the **(ii) resource/NPOS physical characteristics**, smaller size and strategic spatial shape<sup>3</sup> and distribution of POS with static mobility (fixed existence) and high accessibility enable individuals to govern and manage it effectively. High predictability of production (regarding location & quantity high stocking rate), a clear boundary definition, and high dependency on a resource also affect the likelihood and success of collective action positively. These biophysical attributes support lower costs (higher incentives) of monitoring, maintaining and control of resource use.

Last but not least, for the **(iii) governance features**, Ling et al. (2016) aver that to avoid institutional failures, issues of institutions and property-rights (tenure) clarity and completeness, suitability, security, complexity, and heterogeneity must be addressed. The three working rules (constitutional, collective-choice and operational) should be feasible, simple,

less heterogeneous, clear and legally recognised. Specific rules (rights and duties) are vital as they affect a community's incentive and (transaction) costs in enforcement. For instance, a complex (unclear) and maladaptive property-rights structure causes the community to behave opportunistically by underinvesting and overusing the resources. For a stable and equitable institutional arrangement, it must allow all groupings to have an active voice in decision-making and rule enforcement.

This involves operational and collective-choice rules concerning the enforcement of monitoring on both resources condition and social behaviour, graduated sanction, and an adjudication/conflict management mechanism. Another issue is the autonomy of a community or interventions of state authorities, in which two outcomes are expected. External/government intervention can corrode the local initiatives values, or such roles can be a form of empowerment rendering supportive assistance that can help lower or share the costs of the standalone community. For instance, this assistance covers sanctioning, monitoring, providing technical knowledge, training, and a conflict solution mechanism (see the concept of co-management between state and local users, Stohr, 2013; Sarker, 2015; Cousins, 1995).

However, the principal of autonomy should still be held by the local community (Ostrom, 1990). Also, if a larger resource system is discovered, it is better to have a nested system via polycentric governance, in which the above collective-choice and operational rules, e.g., appropriation, governance, and provision of resources apply. It is somewhat hard to craft rules that optimally and adaptively match all dimensions/scales of the use and supply of the CPRs. Also, in terms of enforcement, such operational rules are hard to be executed due to high transaction costs.

Thus, devolution via more centres, subsistence is needed to govern the smaller scale of CPRs to ensure more efficient governance. By delegating responsibilities to the most local position, the highly positive transaction (enforcement) and decision-making costs can be reduced. Moreover, many decisions will solely be made by higher-level officials who lack proper knowledge of the specific practical local problems associated with the decision (see Anderies & Janssen, 2013). Such inexperience and knowledge insufficiency not only escalate the transaction costs but also may undermine the entire local system. Other than these variables, other relevant variables may be imperative in some studies (multi-tier SES) (see Ostrom, 1999; Agrawal, 2001; Ostrom, 2007; Van Laerhoven, 2010).

The original or modified eight DPs are understood as guides (indicators) or frameworks to help analyse the relative success or failure of CPRs management performance. That is, the DPs identified were mostly resembled these long-lasting and durable systems but were absent in those that collapsed (Wilson et al., 2013; Butler, 2013; Baggio et al., 2016; Gari et al., 2017). The aforesaid claims are not only proven in traditional commons, they

are also true as a few studies carried out in the UK (e.g., London, Bristol, and Sheffield) managed to prove that the above design principles are mostly present in, and are associated with, efficient governance and the successful outcome of neighbourhood community commons (Butler, 2013; see also Colding & Barthel, 2013).

Acknowledging the importance of DPs frequency combination and co-occurrence in determining collective action regime success, both Schuppenlehner-Kloyber and Penker (2016) and Ling (2017) conceptualised it as a theoretical benchmark or a methodological tool to assess CPR efficiency and sustainability in terms of governance, management and consumption performance<sup>4</sup> (Gari et al., 2017).

To be more meaningful and practical in addressing the NPOS governance and quality issues, in particular with respect to the first and seventh DPs of Ostrom's, Robert Nelson's (2004) 6-step process of the homeowners' association (HOA) model can be adapted and integrated. It provides a procedural strategy in instituting a community association. The homeowners' association is a singular lawful body that retains formal ownership or title to common areas, such as recreational amenities and facilities, and community parks. It imposes neighbourhood terms and conditions (i.e., rights and duties) on the permissible uses and changes of the common/shared resources.

Below is the summary of his proposition that each state enacts a law to provide for the six-step process (Nelson, 2004):

- (i) A group of individual property owners in an existing neighbourhood could petition the state (government) to form a private neighbourhood association. The petition would describe the boundaries of the proposed neighbourhood and the instruments of collective governance intended for it. The petition would also state the services expected to be performed by the neighbourhood association and an estimate of the monthly assessments required.
- (ii) The state would then have to certify that the proposed neighbourhood meets certain, specific standards of reasonableness, including having a contiguous area; boundaries of a regular shape; an appropriate relationship to major streets, streams, valleys, and other geographic features, and other considerations. Also, the state would certify that the proposed private governance instruments of the neighbourhood association meet the state's standards;
- (iii) A service transfer contract would be negotiated between a neighbourhood committee and the government. The contract includes the conveyance of facilities ownership (e.g., parks) within the boundary (see the ex-ante contract). The state authority becomes a supervisor and middleman within this process;



- (iv) After the compliance and submission of a thorough description of the neighbourhood proposition that includes a services transfer and a cost assessment, a poll would take place within one year. The residents in the neighbourhood would be informed about the details of the proposal by the state;
- (v) The state would supervise the neighbourhood election. The creation of a new private neighbourhood association would require approval from both an affirmative vote of unit owners cumulatively representing 80% or more of the total property value within the neighbourhood and an affirmative vote by 70% or more of the unit owners in the neighbourhood. If those conditions are met, all owners in the neighbourhood are required to join the association and would then be subject to the full terms; and
- (vi) Finally, based on the collective decision-making instrument, the local government would reassign the legal rights for governing common properties (e.g., park) to the shareholders within the association. The government's active ownership, governing, and management rights would be divested.

Nelson's HOA is validated by Chen and Webster's (2006) empirical studies on the retail association formation in Taichung, Taiwan. Thus, it is still acceptable to adopt only three steps of Nelson's HOA formation. The following is the succinct instances illustrated in Chen and Webster's work (Ibid), which are relevant to this paper's residential NPOS context: (i) Procure government's approval to formally institute an association and to specify the area of street retail to be governed; (ii) Within a specified period, the suggested association group has to set up a shop retailers' meeting. Members will appoint board committee (leaders) and commend the rules; (iii) The government must be updated about the meeting outcome by the association, and via the organisation registration within 30 days of the meeting so that a legal position is secured. Meanwhile, a contract exists between the government and the association, where obligations for maintaining the public services are transferred to the association, which include the enforcement of the rules regulating the members and street uses that are not permitted.

Although the above steps reflect similarities to Nelson's procedures, one salient difference is observed. In Nelson's proposition, the neighbourhood association possesses the coercive authority to mandate other residents to become a part of the association, and all of them have to conform to the rules set. The compulsory joint collective action would be endorsed by government laws that approve the deprivation of certain rights from property owners (especially the minority who do not wish to join the community). Conversely, under the street association proposed by Chen and Webster

(2006), the street retail association possesses the authority to govern only its participating members. The implications of the two institutional designs – voluntary and non-voluntary (coercive) are briefly described below.

The effect of non-coercive membership is that it will raise problems as it increases the transaction costs of sustaining cooperation in the commons. Such voluntary membership condition indirectly intensifies the issues of rent-seeking and free-riding colligated with collective consumption. If there is no exclusion exercised on free-riders, underinvestment and inefficient commons management will result. Also, members' trust and their relationship and uniformity are undermined by such institution. The resultant collaboration issues and social costs corroborate the idea that coercive power is a pre-condition for upholding voluntary associations, which have the task of administering scarce and valuable resources.

Additionally, as Ostrom (1990) argued, the coercion element should also be included in the operational rules system (e.g., routine monitoring and maintenance of CPRs) (Chen & Webster, 2006). Likewise, incentives (e.g., via a tax rebate and additional provision of infrastructural services) play a vital role and should be adaptively balanced and distributed by the government in motivating and encouraging the community to be more willing (lower commitment costs) to assume the responsibility (see Van Miltenburg, Buskens, Barrera & Raub, 2014; Le Goix & Webster, 2006).

Finally, both the core frameworks of property-rights realignment (i.e., self-governing regime) and the procedural mechanism of Nelson's HOA coercive formation may contribute to the seminal theory of entrepreneurial club goods by the Nobel economist, James Buchanan (1965). These three approaches converge as one robust solution to address negative externalities contributed by the Hardinian tragedy and other social dilemmas. This aligns with Chen and Webster (2006) that by creating contractual club goods governance (e.g., residential clubs), it can better delineate rights over the shared neighbourhood commons.

Similar to CPRs or private goods, club goods is another category of economic goods, which is to improve upon the idea of the pure public good that can be governed by any property regime. Its attributes are (i) exclusionary and (ii) non-rivalrous (non-subtractable). This type of good often requires a "membership" fees payment to enjoy the benefits of the goods. Non-payers can be precluded from use and access to the goods. Buchanan (1965) addressed that shared goods can be provided efficiently so long as the number of co-consumers is appropriate to the quantity supply and control of the good.

As asserted by Webster (2007), a set of carefully designed and governed club spaces would be more effective, liveable and sustainable, due to less overexploitation and degradation, high incentives in investment, a safer or secured environment, and a better quality of facilities. This supports Le Goix

and Webster (2006) that residential club goods are commodifiable, which contribute to financial sustainability (income generation) of urban governance.

There is evidence demonstrating club goods' efficiency, especially in urban and residential neighbourhood contexts across many countries (e.g., Germany, the US, the UK, China, Taiwan, Malaysia, and Singapore). They have shifted from conventional Tieboutian public good to the club good regime. See more successful cases of Buchanan's legacy in Glasze, Webster and Frantz's (2006) work and Carmona, De Magalhaes, and Hammond's (2008) community-based POS management best practices in some countries that render good POS management and quality.

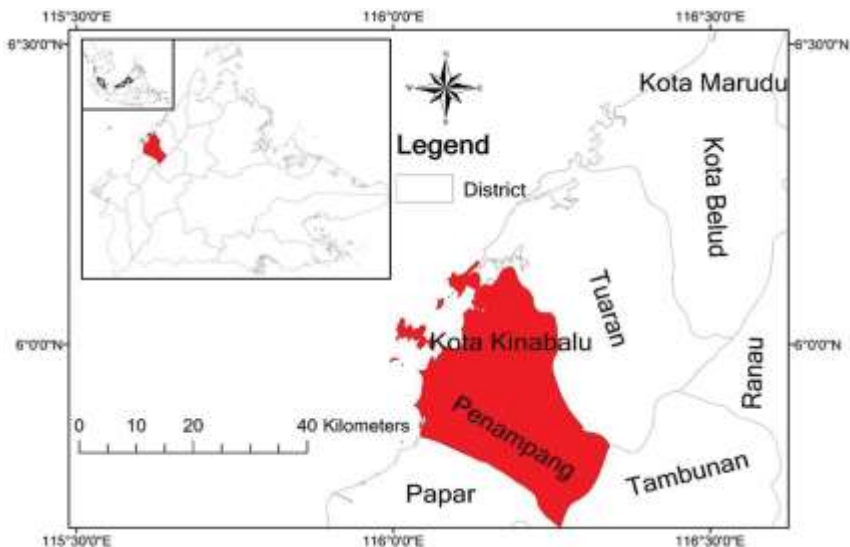
All in all, among the lessons learnt, are that the idea and institution of a common property regime or community-based NPOS management are no longer foreign and should be deemed potentially feasible and valid to address the poor governance and quality outcome of state-owned NPOS. Entailing that one should incorporate the understanding of design principles that are associated with the transaction costs and opportunism theories.

### **3. Methods**

#### **3.1 Study Area**

Covering 25 districts and one federal territory, Sabah, as the easternmost state (73,631 km<sup>2</sup> land area) of Malaysia, with an approximate population of 3.87 million people, is recognised as a multi-attribute (multi-ethnicity, multi-cultural, multi-lingual or multi-dialect, multi-religion) state (see Department of Statistics Malaysia, 2017; Ling & Leng, 2018). It is ethnically and culturally diverse, with more than 60% 'Bumiputera' or natives including Malay, Kadazan, Bajau, Dusun, and the rest are Chinese and Non-Malaysian (Filipinos) (Ling et al., 2016). Kota Kinabalu district is the capital city, with an area of 351km<sup>2</sup> and population of 0.63 million (in the year 2012), governed under the Kota Kinabalu City Hall, and the Penampang district, with an area of 463.47km<sup>2</sup> and population of 121,934 in 2010, with Native Kadazan making up the majority, governed under the Penampang District Council, were selected as the study areas (Figure 1).

**Figure 1:** Map of Kota Kinabalu and Penampang districts, Sabah, Malaysia



Source: Ling and Leng (2018).

In regard to the local residential Country Lease (CL) of Country Land and Native Title (NT) of Native Land, in the context of landed, non-gated-and-guarded residential property, both the CL and NT neighbourhood POS governance systems are governed by Article 13 of the Federal Constitution and Section 40 of the Sabah Land Ordinance Cap 68. There are other principal Ordinances and a judicial decision of case law: *Sabindo Nusantara Sdn Bhd & Anor v Majlis Perbandaran Tawau & Ors* [2011] 8 MLJ 653 related to NPOS provision and governance in terms of ownership, management and consumption rights and duties, including the concept of the Modified Torrens System on the bare trustee, section 49(1)(53) of the Local Government Ordinance 1961, and section 25(2)(q) of the Town and Country Planning Ordinance Cap 141.

Table 2 provides a succinct picture of the diverse practice-based property-rights system of CL and NT NPOS governance<sup>5</sup> in terms of the ownership regime, alienation, consumption, exclusion, and access rights, which are influenced by the title deed issuance (titleship), community association presence, and status of NPOS site handing over and transfer of NPOS title deeds. This table provides information on institutional design and features for both CL NPOS and NT NPOS are used as data input, which is then fed into the governance section/attributes of the SES framework. Apart from the titled CL NPOS with three composite stages of rights allocation and the untitled state-owned NT NPOS (see Ling, 2017), both CL NPOS and NT NPOS are open for public access. Also, since owners (either private subdivider or ultimately local government), regardless of the interim period

and transitioning period, eventually own clear access, withdrawal and management rights, they are regarded as de jure claimants.

**Table 2:** Sabah's property-rights system of CL and NT NPOS governance

Property-rights system	CL NPOS			NT NPOS
Titleship of NPOS (Issuance of title deed)	(Title deed is granted on NPOS) (Involving POS site handing over & POS title deed transfer)			(No title deed issuance on NT NPOS)
Status of transfer and site handing over of POS	1 <sup>st</sup> phase CL NPOS (Prior to title deed issuance)	2 <sup>nd</sup> phase CL NPOS (Prior to title deed issuance: Interim)	3 <sup>rd</sup> phase CL NPOS (Title deed issued)	Surrendered NPOS (Without Title) (Without title - State land) (Needless site handing over/title transfer)
Land ownership	Private/Common property - developer/ owners	State property- Local government (As an equitable owner)	State property- Local government (As a legal owner)	State property- Local government (As an equitable owner)
Management regime (including monitoring, maintaining, control, etc.)	Private / Common Property - (Developer/ Co-landowner(s)) (Temporary - e.g., minimum 18 months)	State property - Local Government or Local government + Common property/community association - residents (registered)*	State property - Local Government or Local government + Common property/community association - residents (registered)*	Open-access resource (without being vested in Local Council)
Positions: Bundle of rights:	Claimant: Only access, use and management rights are clearly and actively possessed by subdivider(s) and local government			Authorised users: Public users with use and access rights
Access		X		X
Withdrawal/ use		X		X
Management		X		None
Exclusion		None		None
Alienation (e.g., POS disposal, title deed transfer)	The title deed is only transferable to the local council by the private titleholder(s)			Not transferable

\*Only certain districts and neighbourhoods adopt such regime on some NPOS (optional)

\*\* The subdivider becomes a bare trustee who is divested of his equitable rights/interest on the POS, except a non-active duty, i.e. executing POS title transfer registration to the council (see FAQ Sabahland, 2009 on the definitions of the bare trustee concept and the Modified Torrens System).

Source: Ling and Leng (2018).

### **3.2 Data Collection**

Reposed on the transaction costs theory using subjectivist proxies (burden, efforts and time), e.g., uncertainty, social/commons dilemmas, and opportunism, and various costs involved, this paper adopted the above IAD-based SES framework<sup>6</sup> of the modified DPs as a checklist in assessing and validating the similarity between the successful design principles and the existing current local NPOS. This is crucial to find the adaptation likelihood of current local SES to collective action NPOS. This means that the paper determines how many complex attributes of the local SES match, or are similar to, the DPs. Having high similarity to the DPs entails lower transaction costs (adaptation and modification costs), which consequently imply potential and feasible institutional realignment and change to the adoption of collective action, and vice versa.

Based on the three key basic SES factors/attributes (community, resources, and governance/institutional), data collection in this paper involved document inspection and analysis, covering subdivision application documents, the above Acts and Ordinances, title deeds and terms of conditions of NPOS, layout/housing development plans, landscape plans, and property market reports, as well as a specific review of Ling (2017), Ling et al. (2016) and Ling and Leng (2018). The above data obtained are related to the management/monitoring duty of NPOS, size, shape, the functionality and geographical locations of NPOS, the profile heterogeneity of community demography and socioeconomics.

For instance, in Ling's (2017) empirical mixed-method study, via 172 (with 150 CL and 22 NT) NPOS quality observations, questionnaires with 200 local residents, focus group discussions and semi-structured interviews with relevant authorities (the Lands and Surveys Department, the Penampang District Council, and both the Landscape and Planning Departments from the Kota Kinabalu City Hall), and private suppliers (developers), the identified data and results constitute the primary SES input and contribute a total of key 21 sub-attributes of a local SES (e.g., club good features and co-management with the government, see more in Table 4). The data were then used and embedded into the local SES so that they can be compared to, and validated against, the modified DPs serving as ideal/standard conditions.

### **3.3 Data Analysis**

Next, to further assess the likelihood outcome quantitatively, a coding system was established to express the range of options existing between the absence and presence of a DP (Gari et al., 2017). Values are assigned to the coded DPs frequencies from 0 to 1, indicating the total absence and the total

presence of the DPs, respectively (Table 3), as well as the intermediate options: Rarely Present (RP) (0.25); Sometimes Present (SP) (0.5); and Mostly Present (MP) (0.75). Except the governance and some biophysical aspects of local NPOS, due to several data inconsistency and uncertainty, and some subjectively qualitative data, especially for community attributes (e.g., trusts and reciprocity, homogeneity, and dependability on NPOS), the intermediate options with the above respective values were intuitively assigned to them.

Aside from the above uncertainty and subjectivity reasons, the intermediate options are also assigned when the majority of the local NPOS attributes indicate such DPs. For example, if the leadership attribute only occasionally appears in some CL NPOS community, i.e., out of a total population of 360 NPOS (Ling, 2017), only half or less than half feature the attribute, then RP or SP code can be assigned to it. Finally, the values were multiplied by the occurrence frequency of the DPs, and the products were descriptively aggregated to provide summative scores for the final likelihood outcomes.

There are three collective action application outcomes covering low (failed), medium (fragile/weak), and high (successful) status with the ranges of scores of 0-6.9, 7-13.9, and 14-21, respectively. However, it is worth noted that since the assigned codes and values for the local NPOS result (see Table 4) generally resemble most of the NPOS SES characteristics, covering the attributes of low mobility of facilities and amenities of POS, and a clear demarcation of boundary, they suffice to relatively represent the majority of the SES attributes of other local CL and NT NPOS.

**Table 3:** Values of the coded frequency of the design principles (DPs) and the range of scores for collective action likelihood outcomes

Code for DPs Frequency	Values	Scores	Likelihood Outcomes
Absent (A)	0	0-6.9	Low (Failed)
Rarely Present (RP)	0.25	7-13.9	Medium (Fragile/Weak)
Sometimes Present (SP)	0.5	14-21	High (Successful)
Mostly Present (MP)	0.75		
Present (P)	1		

Source: Adapted from Gari et al. (2017).

#### 4. Results and Discussions

Table 4 presents the result of local NT NPOS and CL NPOS attributes, that is benchmarked and assessed with the modified collective action DPs. Several DPs of Ostrom's collective action are discovered in physical features, and some in the community and institutional attributes of local

NPOS. The partial presence of leadership and club good features were also found in some NPOS that are mainly governed under the co-management regime, with a small-size, fixed, and defined NPOS boundary. More precisely, from the assessments, for CL NPOS, with 1 (P), 12 (SP), 3 (MP), and 5 (RP), these account for the collective action likelihood outcome of ‘medium (fragile/weak)’ scoring 10.5 points.

While, for NT NPOS, with 3 (MP), 6 (SP), 4 (RP), and 8 (A), these contribute to the collective action likelihood outcome of ‘low (failed)’ with 6.25 points of scores. This may suggest that, if the current state-owned regime on CPR-based NPOS is to be re-aligned to a common property self-organising regime, it is more likely, potential and feasible for CL NPOS in particular, compared to NT NPOS that deviates much from the collective action DPs, because the former’s transaction costs of adaptation (modification and shifting and/or other related costs) are not highly positive (Ostrom, 2011; Agrawal and Ribot, 2014) and are lower than the latter<sup>7</sup>.

For the NPOS physical system attributes, the current local NPOS of CL and NT are relatively small (smaller size, 0.1-1.5 acre); thus, it has lower transaction (management) cost for the community to maintain, as the NPOS are mostly within an easily manageable scale. Next, most of the local parks of CL have low mobility, which is beneficial to users since they feel certain their resource domain is static (fixed). The boundary (demarcation) of CL and NT NPOS is already clearly and easily defined, even during the subdivision of land application. Hence, it can give exact dimensions to the community what to govern, where to govern, and from which point to another point the management should be carried out (see Van Laerhoven, 2010).

Besides, some CL or NT NPOS are centrally located (non-fragmented) on the flat ground, which is also considered less dispersed and closer to the residents (i.e., accessible within 500m). This spatial centrality of resources is vital for successful collective action as it significantly lowers users’ monitoring costs, consumption, communication and collaboration costs (see Van Laerhoven, 2010). In terms of the availability and predictability of quantity/quality and the location of NPOS, since CL NPOS is considered a fixture unit, its production (enjoyment) can be mostly available and enjoyed; at least, users can be rather certain about the location and existence of CL NPOS.

The previous concern on the resource certainty is closely associated with ‘resource recovery pace’, i.e., how fast can a resource be available to be withdrawn after rounds of consumption. Unlike NT NPOS, which has been subject to more severe overexploitation, e.g., illegal conversion or misuse or huge destruction by individuals, except for some vandalism and cleanliness (mismanagement) issues of CL NPOS (Ling et al., 2016), the latter is still considered as a resource that can easily rejuvenate and be available to others.



For instance, a basketball court, after being used by a group of individuals for an hour, can still be available to others.

As a result of pecuniary and non-pecuniary benefits (e.g., better ambience, recreational activities and health benefits), primarily provided by CL NPOS, local users may have a higher dependence on it, which increases their motivation and interest in the POS investment and management. The institutionally triggered club good (exclusionary) features, especially discovered in some community-managed CL NPOS have resembled and fulfilled Ostrom's collective DPs that subsequently contribute to more efficient governance and optimal quality of NPOS (Buchanan, 1965).

Next, in terms of the existence of local leadership that provides local management knowledge and experiences in some CL NPOS and in few NT NPOS, as a result of voluntary locally-recognised community management and involvement as well as head of village (*ketua kampung*) (see Gari et al., 2017 on the success of San Antonio's Forest management due to strong leadership), they do ultimately contribute to a greater likelihood of successful collective action. As NT NPOS has normally resulted from ancestral land (owned by related individuals), compared to CL NPOS with high ethnic heterogeneity, the former's homogeneity in terms of ethnics, culture, and shared values are vital to the success of collective action (Olson, 1965; see instances of Gari et al., 2017 on the collective action failure of urban forest due to social heterogeneity).

Lastly, another salient attribute to be noted is the institutional difference between CL NPOS and NT NPOS. Despite some social-physical attributes similarities in both CL and NT NPOS or some prevailing community attributes of NT POS towards collective action, NT NPOS lacks too many favouring governance attributes of collective actions that eventually result in its low/failed collective action likelihood and success.

As posited by Ostrom (1990), an institution is a prime mover, and it serves as a significant factor/DP in enabling collective action (Van Laerhoven, 2010). For instance, the government recognition of voluntary formation/involvement and intervention in community management for local CL NPOS contribute positively to good collective action governance (Gari et al., 2017). Good quality NPOS is associated with voluntary community participation (see Ling et al., 2016).

Based on the above justification and understanding on the potentiality and feasibility of the local NT NPOS and CL NPOS shifting to the self-organising system, the following is essential to illuminate **how or what ways and to what extent** the modified common property-based eight interwoven principles can be conceptually adapted and realised in Sabah's current residential CL NPOS and NT NPOS governance.

**Table 4:** Validation and assessment of the SES attributes of local NT and CL NPOS with the modified DPs

IAD-based SES Attributes	CL NPOS	NT NPOS	Suggested successful collective action DPs of NPOS (As a standard)
<b>Community attributes</b>			
i) Small number of actors or size of group (DP2)	Moderate (SP)	Moderate (SP)	(P)
ii) Low growth of actors/ community (DP2)	Slow growth (MP)	Slow growth (MP)	(P)
iii) Local leadership (DP2, DP3)	Some NPOS with community assistance and involvement (SP)	Some NPOS with (head of villages, referred to as <i>Ketua Kampong or penghulu</i> ) (especially of ancestral land) (SP)	(P)
iv) Homogeneity (norms, belief, cultural, interest, goal, values, background) (DP2)	Fairly homogeneous (RP)	Fairly heterogeneous But more homogeneous than CL POS (SP)	(P)
v) Trust and reciprocity (DP2)	Unlikely (RP)	Occasionally (RP)	(P)
vi) Local management knowledge and experience (DP2)	Somewhat present (with community) while absent (without community existence) (SP)	(RP)	(P)
vii) High dependability on NPOS functionality/benefits (DP2)	(SP)	(RP)	(P)
<b>POS spatial/physical system attributes</b>			
i) Small and appropriate size/ area (DP2)	Small/ moderate (MP)	Small/ moderate (MP)	(P)
ii) High predictability of production: Productivity (availability and recoverability based on its quality) (DP2)	(SP)	(RP)	(P)
iii) Low mobility (facilities and amenities) (DP2)	(MP)	(SP)	(P)
iv) Demarcability of boundary (DP1, DP7)	(P)	(P)	(P)
v) Good location (accessibility, proximity, centrality) (DP2)	(SP)	(SP)	Accessible(P) Centralised (P) Proximal (P)

vi) Regular shape (flexibility) (DP2)	(SP)	(SP)	(P)
vii) Club good features (DP1, DP7)	Present (in community co-management) (SP)	(A)	(P)

**Table 4:** (Continue)

IAD-based SES Attributes	CL NPOS	NT NPOS	Suggested successful collective action DPs of NPOS (As a standard)
<b>Governance/institution attributes</b>			
i) Formal common property-rights (Constitutional rules) with recognition of government (DP1, DP7)	Present in co-management of NPOS only (SP)	(A)	(P)
ii) Operational rules (e.g., monitoring, consumption, management and monitoring rules) (DP3, DP4)	Sometimes present in NPOS co-management regime (co-managed by community) (SP)	(A)	(P)
iii) Collective-choice rules (DP3)	Sometimes present in co-management of NPOS only but may not involve all stakeholders (SP)	(A)	(P)
iv) Co-management by government (DP1, DP4, DP7)	Sometimes present in co-management of NPOS only (occasional maintenance and campaign organisation) (SP)	(A)	(P)
v) Graduated sanction (D5)	Penalty involves exclusion (RP)	(A)	(P)
vi) Conflict resolution mechanism (D6)	(RP)	(A)	(P)
vii) Polycentricity (D8)	(RP)	(A)	(P)
Conclusion on the likelihood of successful self-organised regime application and execution	Present in community co-management of NPOS only 10.5 (Medium/weak)	6.25 (Low/failed)	21 Successful

**Notes:** DP = Design Principles; A = Absent; P = Present; RP = Rarely Present; SP = Sometimes Present; MP = Mostly Present

#### 4.1 First Principle (with government assistance and recognition)

In Sabah, regardless of titled CL NPOS or surrendered (untitled) NT NPOS, as for the physical (spatial) boundary definition, it is a tangible and immovable property where its usage, location, size/area, shape attributes are predetermined during land subdivision. Generally, for both CL and NT NPOS, once they meet the standard of reasonableness for the association institution (Nelson, 2004), all the residents who live within the park or

residential area *taman* should become members. Some of them are to take up the duty of governing the POS. The proportion rules of 70% for the system emergence by Nelson, 2004 is applicable, in which Chen and Webster's (2006) proposition of coercive homeownership association institution is also adopted<sup>8</sup>

Firstly, among the residents, via voting or other mechanisms, the state or local government (the Kota Kinabalu City Hall and the Penampang District Council) would schedule a neighbourhood election probably within a certain period. The state or local government would supervise the process and inform property owners and residents in the neighbourhood of the details of the imposition of the self-governing system on NPOS.

The governments will also oversee the election process whereby, via the residents' voting choice, they can know the verdict about the neighbourhood association committees (e.g., secretary, president, treasurer and so on) in charge of the collective rules. Next, the association can formally form a contract (i.e., rights and duties exchange or terms and conditions pertaining to POS governance: ownership, co-management, consumption (use change), access, and exclusion) with the local governments, whereby the state government (i.e., the Lands and Surveys Department) can become the mediator and overseer negotiations.

When both parties are in agreement, the local government can then transfer the legal ownership (title deed) and responsibilities, via the legal memorandum of transfer, for regulating the NPOS use to the unit owners within the association. This entails that the local neighbourhood association can now legitimately take up NPOS shared management with the local authority, notably including the enforcement of rules governing their members, as well as enclosing the POS, and preventing, monitoring the uses of POS, charging fees, and alienating (transferring) their proprietorship right of NPOS to others (see Table 5).

As for the alienation right of proprietors, they can only transfer and rent/lease the NPOS; within the title deed, a restriction should be imposed that such public utility cannot be used for any collateral purposes (i.e., NPOS cannot be used for charge/mortgage purposes). As for the transfer and leasing rights of NPOS, approval must be secured from the existing members as well as the state and local governments. Endorsement (rectification and registration) shall be made on both issuance document and register document title deeds, which kept by the community and the government, respectively. NPOS can be rented/leased by proprietors on the basis of granting use and access rights and membership to users. For instance, if a housing unit has been rented or leased out to a lessee or tenant and/or transferred/sold to new owners where the NPOS is considered an accessory unit, the respective bundle rights associated with NPOS shall also be dealt during the transaction.

As for the ownership right, a hybrid regime is proposed. The ownership (title deed) is ultimately held as communal regime (proprietorship), so that the proprietors have the incentive to further their interests and investment (see the attenuation of rights theory), while the residents shall hold the management or rather co-managed (assisted) by the government (Stohr, 2013). Despite the mixed property right regime, it can, however, render successful NPOS governance as exclusion imposed on free-riders and shirkers and the management are the keys in governing the park (Colding & Barthel, 2013).

As for the exclusion right that promotes the willingness for investment and protection, it is not a mere de jure enclosure right conferred upon them; instead, more physical signs of exclusion including verbal exclusion are permitted in the compound of NPOS so that it is more clear to others on such exclusivity, e.g., gating the compound of NPOS and posting the signboard, see Webster, 2002).

Regardless of Sabah's property-rights structure diversity whether the temporary 18 months of private (developer) or local government management, the core idea of this paper is to suggestively transform the current pure private and local government-managed NPOS to the residents (common property) regime only, with the management assistance and intervention of the government. Also, both the NPOS of CL and NT must be gazetted under the Sabah Land Ordinance. In some cases, under the present institution where POS or residential area *taman* is currently co-managed by the registered residents, perhaps re-definition of members and duties/ rights in the committee is required.

**Table 5:** Property-rights of collective action in both CL and NT NPOS governance

Property-Rights Structure	Newly proposed common property-based (collective action) POS governance system Titled granted on NPOS
<b>Land ownership</b>	Preferably communal regime (Gazetted)
<b>Management regime</b>	Common property + State property: Committee of residents + State (local authority) (shall be vested in)**
<b>Positions:</b>	Proprietors
<b>Bundle of rights:</b>	(Residents + committee of the commons)
<b>Access</b>	x
<b>Withdrawal/ using</b>	x
<b>Management</b>	x
<b>Exclusion</b>	x
<b>Alienation</b>	(on outsiders or violators: including members) x

**Public access and withdrawal  
rights**

x  
Yes if membership is granted  
(as this is now public-closed access)  
(as Buchanan's 1965 club domain/goods)

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\*Local government assists in, e.g., sanctioning, monitoring, conflict-resolution mechanism & maintenance/management operations. Certain interventions are vital to lowering the costs/ ease the burden of communities' interactions and action

## **4.2 *Second Principle***

The operational rules of NPOS consumption must be equitably devised and applied to all NPOS users (both members and committees), which include rules governing when and how NPOS is to be used. Committees also need to assess costs paid and benefits gained by every user, e.g., NPOS monthly maintenance fees must accordingly be collected. If particular users, from the proximity and frequency points of view, have often used and benefitted from the NPOS (Anderies and Janssen, 2013), their fees should be higher because inequality and unfair rules incentivising individuals in collective rules non-compliance may cause the collective action system to collapse.

Moreover, benefits (enjoyment) gained from NPOS consumption must be significant or at least transcend the costs of enjoyment and maintenance of POS, but not to the extent that the former substantially exceeds the latter. This situation likely entails an infringement of others' benefits or interest (i.e., somebody may have overused the space). Aside from pure exclusion of outsiders, the idea of space commercialisation by imposing consumption fees on, e.g., basketball court to generate some income to the park is worth exploring. Note that only if POS conditions are inviting, then outsiders will be willing to pay for their consumption.

## **4.3 *Third Principle***

Elected committees (managers) have the right and duties to determine the operational rules. The above, however, does not restrict non-committee members from participating in devising the rules, especially in this dynamic social-ecological environment, where community and POS attributes may change over time. They (residents) can voice their ideas, suggestions, preferences, dissatisfaction, needs, and opinions pertaining to the improvements in the current rules of access, consumption, exclusion, management, and dealing with NPOS.

The following questions and matters should be taken into account, namely covering the maintenance fees imposed (how much is NPOS monthly maintenance?), the period of POS utilisation (when NPOS is allowed to be used?), how long is allowed for per utilisation by individuals? When should maintenance usually take place? How should outsiders be

excluded and how much temporary space consumption fees should be imposed? Possible POS monitoring methods, ways of using NPOS facilities and equipment, and so on. The above issues can be addressed effectively when all the residents within the *taman* are called to attend a meeting once a month (depending on the severity of cases) to discuss any adaptive changes that have to be made on the aforementioned operational rules.

The committee should take note of the requests and considerations and make the necessary revisions and improvements. For instance, fees reduction or providing other forms of services can be considered if the majority of residents (e.g., 90% of them) have opposed the current management fees for being too expensive. Indeed, effective communication between the committees and members is vital to curtail any misunderstanding and conflicts.

#### **4.4 Fourth Principle (with government assistance)**

The monitoring task is not only applied to ensure good NPOS conditions but also to members living within the neighbourhood, especially concerning the behaviours of users' appropriation and the committee's management. Since NPOS may contribute to several environmental goods and other co-benefits, even without coercion or external incentives imposed on residents, they may still voluntarily monitor other users' behaviour in NPOS consumption. For instance, the residents may be keen to ensure outsiders use the space prudently by not behaving opportunistically to overuse the resource beyond the specified timeframe or to cause vandalism. Members (users) may also be willing to monitor the committee's management work and progress, whether or not they are carrying out their work promptly.

If the management is futile, it affects the wellbeing of the park; thus, it affects the enjoyment of the users. However, such monitoring is also extended to the committee members, where (among) the managers will try to ensure other managers do not shirk their management duties. Internal local informal-mutual monitoring, e.g., in the forms of 'friendly warning' to other members on their violation (e.g., vandalism) or a reminder to the committees who shirked their maintenance work are suggested because they are more cost-saving, compared to hiring and using private guards for security and patrolling purposes. Apart from the local government's assistance in the form of liaising with the police department to strengthen the policing activity for the safety and security within the neighbourhood, formal (pro-active) monitoring duties can easily be assigned to those who can have a better monitoring position, e.g., residents who live nearby the NPOS (few hundred metres away from houses).

The above informal surveillance is crucial because it may incur lower transaction and monitoring costs. Besides, the monitors should be given

benefits in the form of payment, garnered from the monthly management fees, so that they may be incentivised to run the monitoring task. Likewise, a sanction system is imposed on them if they are found delinquent in their monitoring job. Lastly, if outsiders tend to access to NPOS without securing any permission, such action should be notified to the members.

#### **4.5 *Fifth Principle (with government assistance)***

Negative externalities should be internalised by imposing substantial penalties on the violators (free-rider, shirker, or overuser). They, of course, should be sanctioned according to the gravity of violations. The sanctions must be executed impartially, e.g., a first-time rule breaker (either temporary members or association members or committee themselves) causing light vandalism either accidentally or purposely, should lightly be fined via payment/contribution of extra fees to the committee for the POS maintenance purpose so that they may be more cautious next time.

For severe violation cases, particularly committed by the same individuals, they should be asked to pay an increased fine or asked to be directly involved in management, e.g., they are obliged to clean and furnish the park for free or to be involved in the monitoring task for few months. Also, temporary exclusion together with the fee payment as sanctions may be appropriate as long as they will not cause underused/disused NPOS. Some forms of assistance can be provided by the government, in which the committee can consult the council and the City Hall on the suitability of sanctions and the methods of sanctions used. The government may also be involved in the sanctioning process with the permission of the committee by imposing additional tax, particularly on the severe violators because certain degrees of coercive punishment can maintain the cooperation between the users.

#### **4.6 *Sixth Principle (with government assistance)***

A conflict among the residents (members) or between members-users and committee members arising from either purposefully or accidentally opportunistic behaviour is inevitable. It is better off to solve the issue earlier and immediately whenever it is still 'solvable'. Early detection and solution of the problem are necessary as, if conflicts are efficiently addressed, it can likely lower cooperation costs among the stakeholders (users and committees). This happens because misunderstanding is reduced, thereby building social capital (e.g., trust) is built.

The conflict solution can be carried out in informal ways, such as negotiation among residents, neighbours visiting, regular public hearings, public meetings, and forums (discussion among neighbours) which should



be held by committees or leaders. Whenever necessary, litigation over local neighbourhood cases and conflicts should be avoided, as this is costly and time-consuming. If there are too many problems at one time, pay more attention to the critical conflict issues. Sometimes if conflicts and problems become more severe, the local government as a third party can render a better platform (intervention) as they have their experts to resolve it.

#### **4.7 Seventh Principle (with government intervention)**

This principle is related to the first principle. Since the local self-organisation system can be acknowledged and recognised by the governments (the Lands and Surveys Department and the Kota Kinabalu City Hall), in which the local association rules conform to the local urban plans or state laws (the Sabah Land Ordinance, the Local Government Ordinance, and the Town and Country Planning Ordinance), the communal rights should be formally/de jure stipulated within the laws or in another set of documents. Such formal legal endorsement entails that the self-organising regime, which is governed by the particular neighbourhood association, is being set aside (registered) for the particular NPOS or *taman*.

Another requirement is that the formal governmental recognition can be more secure if the association conforms to the general house rules of the local government, e.g., participating in meetings for the updates of current POS problems and the election of leaders (committees). In relation to the fourth, fifth and sixth principles, the intervention of government in the forms of empowerment and recognition can facilitate the community's daily operational and managerial tasks and their decision-making. It can also balance the authority imposed by the neighbourhood association. If the neighbourhood is dissatisfied with the current POS rules, they may engage in calling on the authorities to assist in the form of providing advice or acting as a mediator.

As Ostrom (2009) asserted, changing rules that exclusively use unanimous ideas may impose high transaction cost. Thus, external governmental intervention is necessary (see Chen & Webster, 2006 on the advantages of co-existence of top-down and bottom-up approaches; see also Sarker et al., 2015).

#### **4.8 Eighth Principle (for larger and more complex POS with government intervention)**

As for the Kota Kinabalu district, Sabah, in 2015, it consisted of ten zones, 100 neighbourhoods/*taman*, and about 400 residential NPOS. These numbers are considered significant. Thus, nesting governance/devolution (vertical linkage) is necessary. Akin to the subsidiarity principle,

delegation/coordination of power (polycentricity) to the most local level and to the relevant group who has a better position in governing the POS is crucial (Webster & Lai, 2003). Relying only on one-centre approach, the centre will be heavily burdened and undermined as the operational transaction cost is highly positive (see the failures of, and lessons learnt from, the existing local government management) (Ling et al., 2016).

Thus, in the zoning context of NPOS governance, (e.g., zone A and other zones - as a centre, which has its committee, normally as a supervisor), it spatially embeds 5-10 neighbourhoods (as the 2<sup>nd</sup> layer), and subsequently, for each neighbourhood or *taman* (as a centre, which has its committee in neighbourhood setting), it nests a few NPOS (as the 1<sup>st</sup> layer). Ultimately, both layers must have their governing rules, roles and responsibility, e.g., the NPOS committee should report and update their NPOS governance status quo (1<sup>st</sup> layer) to the higher association committee - zone level (2<sup>nd</sup> layer). Since in one zone there are few neighbourhood centres, a horizontal linkage is employed.

Collaboration among those zone associations (inter-zones committees) and neighbourhood associations (inter-neighbourhood committees) of NPOS, despite different locations and varying attributes of biophysical and community, is adaptively promotable, in which knowledge and experiences sharing is useful for the operational rules among the committees. The government is also suggested to be involved in this bigger scale of POS, in which they can directly deal with the zone associations (the highest level of the committee). The government acting as an overseer can directly receive reports or updates (e.g., any POS governance-related problems) from the zone associations.

## **5. Conclusion**

Via the combination of top-down empowerment and the adaptive bottom-up approach, modified Ostrom's (1990) decentralised self-organising eight DPs, coupled with Williamson's transaction costs and opportunism management (see Coase, 1960), Buchanan's club good, and Nelson's homeownership association, are indeed necessary, valid, efficient, and feasible and applicable, primarily for CL NPOS to address the local property-rights issues, e.g., maladaptive property rights and severely attenuated rights and NPOS governance dilemmas (e.g., overexploitation and shirking).

Aside from contributing to the theoretical and methodological perspectives of collective action of DPs and the IAD framework for the validation purpose, this study also provides awareness and insights to policymakers that the adaptive self-governing and organising collective action system, via the proposed homeownership association with the toll/club good concept, integrated as a potential solution, is crucial. However,

to facilitate and enable self-organising system implementation, aside from emphasising the need for an institutional design (property-rights system) change from state-owned NPOS to the common property regime, this study also contributes to the implications of local NPOS spatial planning and designs, whereby modifications in relation to the POS size, location, shape, and surrounding physical construction are to be considered.

In short, this paper offers a rather different lens to scholars and practitioners that in designing and planning a vibrant and sustainable housing environment within a neighbourhood community, the governance of NPOS management and its quality using the social-ecological system (SES)-based new institutional economics (NIE) approach, consisting of property-rights, commons, transaction costs, opportunism and the collective action analytic framework in dealing with opportunistic human-environment interaction behaviour, is essential and requires more attention, since the problems and social costs of NPOS are likely associated with governance (institutional), consumption and management aspects, rather than pure spatial and architectural design-based issues.

Despite the study's theoretical and methodological strengths and unique selling points via numerous scholarly theories and the SES framework, there are limitations and caveats. The above 21 DPs are still subject to empirical verification and further modification because of other potential, relevant factors/DPs may be identified from time to time (adaptively) to form a more complex, complete SES framework. The present conceptually validated Ostrom, and other related theories-based solutions have not been adequately tested and evaluated yet on the ground.

Therefore, to understand the de facto acceptance and feasibility level of collective action better, this paper suggests that future empirical studies and solution evaluation should take into account stakeholder meetings, focus group discussions, and public participation; the stakeholders here are referred to local governments, land officers, neighbourhood residents, and private developers. Future study is vital to formulate a more tangible and practical self-organising action plan and an implementation plan for the interest of creating a liveable, resilient and sustainable community neighbourhood.

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### **Notes**

1. “An essential element or condition that helps to account for the success of these institutions in sustaining the CPRs and gaining the compliance of generation after generation of appropriators to the rules in the use” (Ostrom, 1990).
2. See other scholars Runge (1986), Wade (1987), Berkes (1989), Stevenson (1991), Pinkerton and Weistein, (1995), Baland and Plateau (1996), Mckean (2000) who shared and affirmed the similar design principles of Ostrom (1990).
3. Legislative Council Panel on Development (2010) argued that regular-shaped (e.g., rectangular or square) spaces may incentivise users to appreciatively use (optimise) the spaces, as the former is more usable (with various usages), compared to non-regularly shaped POS, which is not fully visible and flexible.
4. Although these DPs can relatively account for the success/failure of a self-governing regime, it should not be taken as final diagnosis and panacea to determine and address the issues of successfulness and failure of an institution.
5. This practice has been enforced by the Director of the Lands and Surveys Department of Kota Kinabalu (as headquarters); hence, it applies to other districts within the entire State of Sabah.
6. The IAD framework serves as an analytical tool to systematically explain the biophysical condition, rules in use, and community attributes (factors) and their impacts that determine the individuals’ costs/incentives and behaviour (actions/interactions situations/process) in a particular collective action regime (outcome).
7. There are not many drastic changes of SES attributes need to be undertaken by public officials for CL NPOS. After all, public officials/stakeholders may know what (attributes) should be changed, fine-tuned, and what should be retained.
8. Such mandatory, *en bloc* formation and collective rules are still imposed on the entire neighbourhood (i.e., on all residents: new or existing or future members), so long as certain agreement (e.g., 70%) from the majority of residents is achieved, even though the remaining are in disagreement (Nelson, 2002). The coerciveness element to instituting collective group is essential not only to address the commons tragedy (overexploitation), but also to avoid the Tragedy of the Anticommons (i.e., disuse/underuse of NPOS), since residents have rights to, and may, exclude themselves from joining and forming the self-organising regime.

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