

Interlocking Blocks in Social Construction of Housing: Collaboration of Local Government, NGO and the Urban Poor

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Abstract: With the failure of both public and private sectors in ideal provision of low-income housing, the agencies of NGO and the urban poor are seen contributing important role in shelter provision. In the co-production of housing, this paper sought to explore on the participation of various agencies in the social construction of low-income housing in Los Amigos relocation site, Davao City, Philippines. A survey was conducted covering 33 housing units of the members of a homeowners' association who are beneficiaries of relocation site by the city government and assistance on housing construction by NGO. In this relocation site with lots provided by the local government, units assisted by NGO were initially provided with core housing models installed with locally produced interlocking compressed earth blocks. Upon occupancy of the urban poor beneficiaries, incremental improvements were made through self-help manner. Inspired from the interlocking compressed earth blocks as the basic building material for core housing units, this paper demonstrates the social construction of an architecture as result of collaboration between various actors in the socio-spatial processes. Most importantly, the empowerment and participation of the people, represented by the urban poor and NGO, as the centre in achieving Sustainable Development Goals.

Keywords: Urban poor housing; NGO; interlocking blocks; Davao City.

1. Introduction

Massive rural to urban migration resulted to shortage of affordable housing in the formal market sector. In the context of developing countries, rapid growth of urban population coupled with poverty resulted to proliferation of informal housing in impoverished settlement conditions as affordable shelter for the urban poor. With the failure of both public and private sectors in the ideal provision of low-income housing, referring to the promises of social welfare and neo-liberal market oriented policies, respectively, the agencies of non-governmental organisation (NGO) and the urban poor are seen contributing important role in shelter provision.

In the Philippines, in Davao City for example, a sheer number of urban migrants who need adequate shelter is beyond the capability of the private sector to provide through the formal housing market, and the government through its socialized housing programme. However, from the point of view of citizen

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participation, NGO initiatives are seen successful in assisting in the provision of housing and settlements for organised urban poor communities. Despite ended up settling in impoverished conditions in the slums and informal settlements, the ingenuity of the urban poor in providing their own shelter is also observed in their self-help housing initiatives. Thus, in the context of citizen participation, there is a need to explore on the contribution of the people, assisted by NGO, in the formation of built environment evident in the construction of low-income housing and settlements.

2. Background to the study

2.1. Housing typologies and the transition from living in informal housing towards owning formal housing types

The preliminary findings in a comprehensive case study of low-income housing and settlements conducted in Davao City, Philippines, revealed that low-income housing can be classified into different types in a range of contiguous categories from informal to formal housing units (Malaque III, *et al.*, 2014). For the urban poor living in informal settlement, there may be three ways to own formal housing unit. Firstly, the urban poor had to undergo multi-step transitions from living in informal housing and settlement, and became owner of formal housing unit in due course. This also means *in situ* progressive development of former informal urban settlement that went through a process of regularisation. Secondly, ownership of formal housing is achieved through one-step regularisation where an urban poor living in informal settlement became beneficiary of a low-cost housing unit with assistance from both the government on provision of land and NGO for house construction. Thirdly, with the same one-step regularisation model, ownership of formal housing unit is achieved by being a qualified beneficiary of formal housing loan, or in other case, the urban poor improved his/her capacity to afford completed housing unit sold in the formal housing market.

The traditional 'one-step regularisation model', originated and successful in high-income countries, was criticised by Lim (1987) when this model was adopted in developing countries, thus, the 'multi-step transition model' was posited as alternative. However, in the case study conducted in Davao City, Philippines, the 'one-step regularization model' was observed successful in the provision of formal housing for the low-income sector because of the collaboration of the government for assistance on land development and security of tenure, and the NGO for participation in the construction of housing units (Malaque III, *et al.*, 2014). With improved security of tenure, incremental construction towards finishing the housing units by the inhabitants themselves was also observed (Malaque III, *et al.*, 2015). While the previous comprehensive study (Malaque III, *et al.*, 2014; 2015) also covered cases of *in situ* progressive development of urban settlements and multi-step transition of housing, this study focused on cases of housing in a relocation site provided by the local government unit where cases of successful one-step regularisation with assistance from the NGO for house construction were found.

2.2. Social construction of housing

In terms of epistemological and ontological approaches to housing research, McNelis (2014, p. 11) identified 'positivism' as the most common approach being employed. Positivist paradigm that underpinned traditional housing policy, popular at the height of modernity in the twentieth century, viewed housing problems in an objective way. Following the social welfare approach then popular in the 1970s, housing solutions were implemented based on the ideological tendencies of concerned governments. For example, Mayo, Malpezzi and Gross (1986, p. 184) reported that if there is a

perceived shortage of shelter, the government will build houses. In the context of developing countries, this traditional approach failed to cope with the dynamism and complexity evident in slums and informal settlements. From the point of view of urban design, Madanipour (2006) originally defined the actors of socio-spatial dynamic processes in the formation of built environment. For example, according to Madanipour (2006, p. 174), the socio-economic process reflects the act of the producers identified as 'those who build the city, predominantly developers and their financiers and team professionals, including designers and construction companies'. However, in the context of a developing country, Malaque III, *et al.* (2016, p. 96) observe that the urban poor themselves are identified as the main producers with technical and other forms of assistance from NGO. This implies that the urban poor are both the users (socio-cultural actors) and the producers (socio-economic actors) of housing and the built environment. This same framework was applied in the previous paper of Malaque III and Golimlim (2019) on the construction of low-income housing towards climate change adaptation and disaster risk reduction, utilizing case study of low-income housing provision for the victims of typhoon. For housing research that offers an account of the processes by which a housing phenomenon is treated as socially constructed, this paper adopts the postmodernist paradigm of 'social constructionism', identified by Lund (2011) as one of the five approaches used in understanding housing policy in the UK.

2.3. Collaboration in housing provision

Social construction of housing demonstrated by reciprocal relationship between actors in the socio-spatial processes, in this paper, is concretised with the concept of collaboration. Collaboration as a dynamic process was examined in the study of Rattelade and Sylvestre (2012) with Ottawa Supportive Housing Network as the case. The study sought to understand the dynamic inter-relationship of categories of effective collaboration originally identified by Mattessich and Monsey (1992, as cited by Rattelade and Sylvestre, 2012) to include environment, membership, communication, process/structure, purpose and resources. In the context of developing countries, in the case of Nepal for example, collaboration was a result of the movement of civil society represented by squatters' organisations (Tanaka, 2009). The movement started in 1990 with workshop on squatters organized in Kathmandu by the Concerned Citizen Group in Nepal. Initiated by the late Dr Ramesh Manandhar who was a well-respected architect and housing rights activist, this eventually led to the formation of the Lumanti Support Group for Shelter, an NGO that facilitated the formation of different grassroots people's groups and built their capacity. From one of confrontation with government authorities, Tanaka (2009) highlighted the change of squatters' strategy to one of collaboration with multiple stakeholders, including non-squatters. With the change in relationship between squatters and non-squatters, and with the moves for public-private-community partnership, thus, this resulted to collaboration.

Collaboration is also associated with co-production of the built environment. In the context of developing countries, in the case of Zimbabwe for example, collaboration between states and organised communities managing their unequal power relationships is linked to make co-production work as strategy for settlement upgrading (Shand, 2018). In the European context, the concepts of collaboration and co-production are used as social constructs to understand the phenomena of housing provisions in Vienna and Lyon, Austria and France, respectively (Czischke, 2018). Exploring on the cases, the notion of co-production illustrates the relationship between housing providers (public, not-for-profit, cooperative, professionals) and the user groups (residents) in collaborative housing projects. Thus, focusing co-production of space defined by housing and the built environment, collaboration is seen as a shifting paradigm in citizen participation managing reciprocal relationships between actors in the socio-spatial

processes instead of having tug-and-war between the power holders and the marginalised sector such as the urban poor. Moreover, collaboration is also applied in transdisciplinary exercise involving the academic actors, community and development practitioners (Nix, *et al.*, 2019). However, this paper focuses on the collaboration between the government, NGO and the urban poor, predefined as agencies in the social construction of low-income housing.

3. Aims and objectives

Following the preliminary result presented in the paper of Malaque III, *et al.* (2014) on the typology of housing units and the multi-step transition from living in informal housing to owning formal housing types, succeeding studies focused on the cases of multi-step transition of housing found in *in situ* progressive development of urban settlements. Examples of succeeding papers include the incremental construction of housing in direct relation to the improvement of security of tenure (Malaque III, *et al.*, 2015); and, the evolution of housing and socio-spatial processes in low-income settlements (Malaque III, *et al.*, 2016). The focus on cases of *in situ* multi-step transition of housing followed the criticism on the failure of one-step regularisation model adopted in developing countries. However, following example of successful one-step regularisation, unique in the case of Davao City, Philippines (Malaque III, *et al.*, 2014), this study revisited housing cases in a relocation site where a community of urban poor beneficiaries received assistance from NGO for the construction of housing units.

Despite being the subject of scholarship presented in the previous papers (Malaque III, *et al.*, 2015; 2016; Malaque III and Golimlim, 2019), the social construction of housing and settlements participated by various agencies requires further detailed understanding. Thus, the aim of this research is to explore on the participation of various agencies in the social construction of low-income housing in Los Amigos relocation site, Davao City, Philippines. From the point of view of socio-spatial processes, to illustrate housing as a material expression, this research emphasizes the importance of political, economic and cultural factors in the formation of built environment. Hence, it is hoped to provide insights into housing interventions, especially in terms of architectural design and practice, appropriate in developing countries.

4. Case study area, housing cases and data collection

The case study presented in this paper was conducted in Davao City, Philippines, the same city that situates the comprehensive study of low-income housing and settlement reported in the previous papers (Malaque III, *et al.*, 2014; 2015; 2016). While the previous papers were based from extensive fieldwork conducted from February to April 2014, approved by The University of Adelaide Human Research Ethics Committee (January 2014), covering a total of 74 households in 11 settlements, this current study revisited the Los Amigos relocation site that is one of the mentioned 11 settlements. Moreover, while the fieldwork data in 2014 included only three housing cases located in this relocation site, this current study, funded by the University of the Philippines Mindanao through its In-House Research and Creative Work Grants (2020), covers 33 housing units of the members of *Samahang Matute at Soliman* (SAMASOL) homeowners' association who are beneficiaries of relocation site by the city government and assistance on housing construction by NGO.

SAMASOL homeowners' association was organised and officially registered in 2012. The association has 46 registered members qualified for city government relocation site, being affected by demolition of their informal houses, among other bases for qualification. Out of 46 members, 33 were qualified for assistance on the construction of houses from NGO, which became the subject of this case study. These

33 housing cases are coded with Housing Unit (HU) numbers from 001 to 033 indicated with their respective household family names given by the respondents during fieldwork. These family names have no legal implications, except that they are only used as reference for academic discussion. The current fieldwork was conducted in time of COVID-19 pandemic, thus, strict protocol for preventive measure was observed. This includes the hiring of NGO staff and homeowners' association officers as enumerators and on other fieldwork assistance; wearing of face mask; and, maintaining the required social distancing during household surveys. Furthermore, COVID-19 screening questionnaires were completed by those involved in the actual fieldwork including enumerators and household participants. For the safety of research proponent, supervision of fieldwork was conducted remotely by monitoring through mobile phone.

5. Presentation of results

5.1. Provision of relocation site by the local government unit

The 1987 Philippine Constitution, reported in the PhD thesis of Malaque III (2017), was a major landmark in the country's governance following the People Power revolution in 1986. The Constitution, as a general framework, sets guiding principles on the conditions of evictions and the roles of the government, private and non-profit organisations in housing delivery and infrastructure development. Furthermore, this became the basis for enactment of the Local Government Code of 1991 and the Urban Development and Housing Act of 1992. These major legislations marked the departure from eviction and relocation to the adoption of a more decentralised approach which integrated the participation of the urban poor; and, redefined the roles of local government, urban poor communities, and mediating groups such as NGO.

In this case study, the Los Amigos relocation site is one of the latest relocation project of the city government of Davao. It is located approximately 21 kilometres northwest of the city centre through the Davao-Bukidnon road. The site has a total land area of 135,033 square metres that can accommodate at least 747 lots compliant to the minimum standards for socialised housing. Each lot has an area of 80 square metres each provided to qualified housing beneficiaries by the city government. In the time being, while site and infrastructure development is not complete, the urban poor beneficiaries are only allowed to occupy with no final agreement yet between them and the city government.

5.2. Assistance in the construction of housing units by the NGO

The Homeless Peoples' Federation Philippines Inc (HPFPI), active in many years, has operated in the dumpsites of Payatas, Quezon City since the 1990s. The federation was formed, with the Vincentian Missionaries Social Development Foundation Inc (VMSDFI) Manila (2001) as NGO partner, to bring together low-income community organisations that had developed housing savings groups. At the time of Papeleras, *et al.* (2012) publication, HPFPI was reported being active in 17 cities (including Davao) throughout the country with a total savings of USD 987,844. Aside to finance housing needs for the urban poor, the savings demonstrates a social mechanism to build networks of communities, to bring people to work together towards a common goal. In the case of this study, HPFPI, with its office based in Davao City, played important role in community organising to support SAMASOL homeowners' association to avail housing assistance.

In terms of micro-financing, the Community Resources for the Advancement of the Capable Society (COREACS) served as the partner NGO to provide loans to qualified beneficiaries for the construction of core houses mainly installed with locally produced interlocking compressed earth blocks (Figure 1). The loan package for a 20-square meter core house costs a total of PHP 150,000. To qualify, beneficiaries must be able to pay one-time equity amounting to PHP 30,000; and, with household income to afford monthly payments of PHP 3,145 in five years for the remaining PHP 120,000 loan amount. The monthly payments were computed with 18 per cent annual interest rate on diminishing balance. Further NGO assistance includes the construction of core houses by the Link Build Inc (LINKBUILD), supported by the Technical Assistance Movement for People and the Environment Inc (TAMPEI) for the design and technical matters (Table 1).

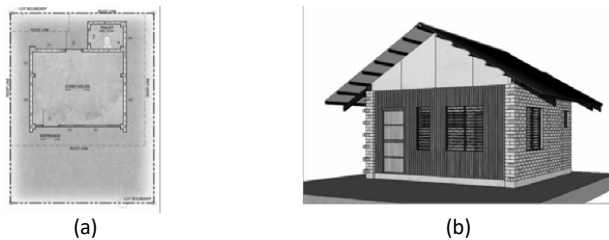


Figure 1: Floor plan (a), and 3D model of core housing unit initially provided by NGO (b)

Table 1: Network of NGO collaborated to assist in the construction of houses

	Name of NGO	Assistance / participation
HPFPI	Homeless Peoples’ Federation Philippines Inc	Community organizing
COREACS	Community Resources for the Advancement of the Capable Society	Micro-financing
TAMPEI	Technical Assistance Movement for People and the Environment Inc	Design and technical
LINKBUILD	Link Build Inc	Construction of core units

5.3. Incremental construction of housing units by the inhabitant beneficiaries

Two out of three housing cases covered by this study previously settled in informal housing and settlements. Aside from being affected by demolition, some of them were renting in informal housing and settling in danger zones such as in flood prone area near Davao river. An isolated case, the Sapid household (HU010) previously owned and lived in a formal housing located in the city centre. For the reason that their house was demolished being affected by road widening project, thus, the household qualified for a relocation site. Housing cases covered have an average household size of four members. For two cases of extended or multi-family households, the Sapid (HU010) and the Macabodbod (HU016) households, their sizes are eight and eleven total members, respectively. In the following paragraphs, selected representative cases of incremental housing construction are presented.

Figure 2 presents two sample housing cases which remain almost the same in comparison with the core house preliminary provided by NGO shown in Figure 1. In Figure 2(b), construction detail of the installation of interlocking compressed earth blocks shows the flexibility of the core house for further expansion of areas and incremental construction of structures. This type of blocks (sometimes referred as bricks) was first used as alternative housing materials in African countries and later introduced to

Asian countries through international network of NGOs for use in low-cost housing projects. In terms of production, compressed earth blocks were made of 10 per cent cement and 90 per cent lime soil. Moreover, water is added in proper proportion considering moisture content of lime soil, local climatic condition of the site during production, among other considerations to achieve desired structural strength. In some other cases, chemical additives were added to shorten curing period or to enhance structural qualities. In its application as major building material for the core house shown in Figures 1 and 2, the use of temporary building materials for the frontage wall, such as wood planks (Figure 2[a]) or plywood sheets (Figure 2[c]), allows easier expansion towards the front yard without damaging major structures nor wasting more permanent building materials already installed.

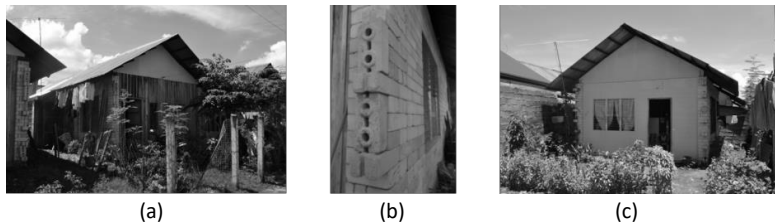


Figure 2: Samoranos (HU002) house (a), construction detail of interlocking compressed earth blocks (b), and Panchito (HU011) house (c)

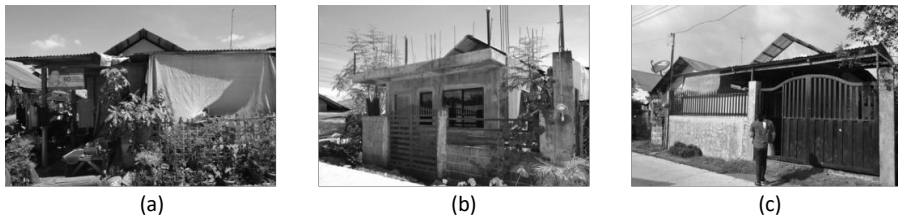


Figure 3: Incremental improvements of Sapid (HU010) (a), Mulit (HU018) (b), and Habagat (HU032) (c) houses

From the initial core house, further incremental constructions by the inhabitant beneficiaries themselves were observed in various forms. Despite improvements were done at the same time period, in response to the needs of the inhabitants and in accordance to the financial capacity of the households, these current housing cases in various forms represent different phases of incremental constructions. For example, in the case of Sapid house (HU010) shown in Figure 3(a), any available or affordable light building materials were used for makeshift expansion of the core house to shelter a multi-family household of 11 members. By its nature, this current incremental construction is considered temporary. In the case of the Mulit house (HU018) shown in Figure 3(b), the incremental improvement is observed in the appearance of an expansion in the front using concrete and masonry construction. Despite unfinished in the time being, the structural form implies to carry an upper floor. In the case of Habagat house (HU018) shown in Figure 3(c), to simply enhance safety and security, and privacy, improvements were done focusing on the construction of permanent property walls and front entrance gate.

Five out of the 33 housing cases covered in this study were observed completed with permanent building materials for the housing structure and finished with tiles and paints. Samples of fully completed and finished houses shown in Figure 4 demonstrate the end goal of those cases of incremental construction in-process presented above. As finished architectural product, the final form reflects the contribution of interlocking compressed earth blocks (as basic building material used) and the flexibility of the core house model to accommodate effective incremental construction by the inhabitants themselves during occupancy. Architecture, in this paper referring to a house that provides man/woman's basic need for shelter, as material expression of participation of various agencies of socio-spatial processes is the subject of discussion in the succeeding section.

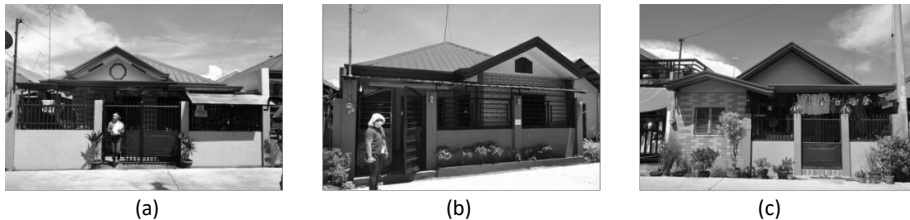


Figure 4: Maalat (HU001) (a), Magno (HU012) (b), and Maalat (HU022) (c) houses

6. The interlocking blocks in social construction of housing

The seminal work of Turner (1968) emphasised the agency of the settler in squatter settlement. Referring to the architecture in squatter settlement as 'an architecture that works', Turner (1968) then demonstrated that the incremental construction of a house started from a simple shack where a squatter inhabitant invested his/her life savings in a dwelling that he/she created by him/herself in the process. However, after decades of learning from interventions of governments and private financial sectors (with varying degrees of success and failure), this case study illustrates how a core house model situated in a local government provided relocation site an effective initial housing provision for the inhabitants to further its incremental construction in self-help manner. An example of successful model of one-step regularisation resulted from collaboration between the government (on provision of land and security of tenure) and NGO (on assistance in house construction) was observed in a previous study (Malaque III, *et al.*, 2014). Moreover, in this study, the referred successful one-step regularisation is further enhanced by the contribution of inhabitant beneficiaries in the incremental improvements, completion and finishing of housing units in self-help manner. Improved security of tenure as important factor to encourage investments from inhabitants for incremental construction of houses, also observed in another previous study (Malaque III, *et al.*, 2015), is further demonstrated in the 33 housing cases covered by this study that are located in a local government relocation site with assistance from NGO on provision of core housing units. The provision of land and secured tenure (by the government) and the acknowledgement of inhabitants to qualify for assistance in provision of core houses (by the NGO) encouraged secured investments from inhabitant beneficiaries on the incremental construction, completion and finishing of their houses using permanent building materials.

Inspired from the interlocking compressed earth blocks as the basic building material for the construction of initial core housing units, the 'interlocking blocks', in social term, refers to the participation and collaboration of the government, NGO and the urban poor as agencies in the social

construction of low-income housing illustrated in this study. From the point of view of socio-spatial processes, with actors originally defined by Madanipour (2006), followed by a redefinition of the socio-economic actors in the context of a developing country, in the case of the Philippines by Malaque III, *et al.* (2016), the agencies of social construction of housing and their acts are presented in the following points.

- The government as actor in the socio-political process, its successful participation is demonstrated in the direct intervention by the local government unit, in this case the city government of Davao, on the provision of land and secured tenure for the urban poor housing beneficiaries.
- The NGO, in its participation in assisting the urban poor as producer in the socio-economic process (per redefinition of Malaque III, *et al.*, 2016), played important role in community organising, provision of micro-financing, technical assistance in the design and construction of core housing units.
- The urban poor, as actor in both socio-economic and socio-cultural processes (referring to the same redefinition of Malaque III, *et al.*, 2016), demonstrated ingenuity in creating their own dwellings in the process fit to their realistic needs and economic status in time.

7. Conclusion

The social welfare policy approach in provision of complete housing product for the low-income sector was criticised not successful in developing countries due to limitations of government funds. However, in this study, it is observed that the government is successful in facilitating the provision of land with secured tenure in a relocation site by the local government unit. In the same way, the neo liberal market oriented policy approach mainly played by the private financial sector was criticised for bringing the urban poor, supposedly as low-income housing beneficiaries, to long-term debts resulted to vicious cycle of squatting and relocating. However, with the participation of NGO in community organising, provision of micro-financing, and assistance in the design and construction of core housing units, the ingenuity of the urban poor to create their own dwellings, which Turner (1968) once had faith, is better realised. Eventually, the co-production of housing and the built environment by collaboration of the government, NGO and the urban poor is demonstrated in this study. Hence, for an architecture that really works, it must be an architecture that is socially constructed as result of collaboration between various actors in the socio-spatial processes, most importantly empowering the participation of the people who is the centre in achieving Sustainable Development Goals.

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