

# Unravelling the Constraints in Reconstruction of Core Urban Housing Sector

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## Abstracts

The Nepal's National Reconstruction Authority (NRA) experienced slow progress in urban housing sector. Only 43% of beneficiaries in the Kathmandu Valley received the last tranche of the housing grant in comparison to nearly 75% in the Rural Municipalities by April 2020. There are various hindering factors in urban housing reconstruction. Land parcels below municipal threshold size, land disputes, the municipal standard of road width, incompatibility between heritage requirements and people's preference, unaffordable construction cost and weak access to housing finance are some of the major constraints. The broader objective of this study is to unravel those constraints which impact on the reconstruction of urban housing. The specific objectives are to analyse the problems and their interlinkages with other factors and to recommend appropriate strategies and approaches. This study used a substantial amount of secondary information from various sources. In addition, primary qualitative surveys were conducted in 8 sample municipalities and interviews were taken with selected central level relevant agencies. This study found that land and access to finance are structural problems which are beyond the NRA's legal ability to address. The Government of Nepal (GoN) will need to integrate reconstruction activities with a long-term urban renewal strategy which need to be financed through the proceeds from the sales of additionally created building space. Other non-structural issues can be addressed by NRA itself with increased levels of awareness and by engaging experienced professionals in housing reconstruction.

*Key words: urban housing, constraints, reconstruction, structural, non-structural*

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## 1. Introduction

The urbanization trend in Nepal is taking a rapid pace. In the year 2014/15, 40% of Nepal's population lived in 217 Municipalities with annual growth rate of 5.3% during 1981 to 2011 (MoUD, 2017). In addition, the MoUD (2017) states that the Kathmandu Valley and Pokhara are highly urbanized with 96.97% and 79.52% urbanization rate respectively, which is below 42% in other municipalities. Consequently, the density of population in the Kathmandu Valley is 362.4 persons per hectare (ppha) in comparison to 2.57 ppha in Kamalamai municipality which is located in the Eastern Nepal with rural set up. Further, the MoUD (2017) emphasized that the lack of affordable, adequate and safe housing for economically weaker sections of the society and increasing squatter settlements are the major housing problems in the urban areas particularly in the Kathmandu Valley municipalities.

The urbanization in Nepal has largely been characterized by haphazard growth, infrastructure deficit, skewed densification of the Kathmandu Valley, and an urban sprawl at the cost of agricultural land (Chand, 2019); (Morichi and Acharya, 2013). The Land Use Act (GoN, 2019) has a provision to establish a Land Use Council at the local, provincial and national level which may be instrumental to develop land use plans for guiding urban development in a desirable way.

Until now one of the major gaps has been the institutional isolation in the development of these plans (Chand, 2019). Nepal did not prioritize urban development issues more systematically. Nepal introduced its first “National Shelter Policy” in 1996 (MoUD, 2012). Consequently, the issues of Nepal’s rapid urbanization along with its growing migration to cities have led to a deficit of affordable housing and a rise in squatter settlements.

Lying in a high seismic zone, Nepal has experienced highly damaging earthquakes throughout its history (Innovative Solutions Pvt. Ltd., 2016). The Gorkha earthquake of 25 April 2015 measuring 7.8 Magnitude and the massive aftershocks that followed a month later on 12 May 2015 measuring 7.3 magnitude, brought a heavy loss to life, property and the country’s physical infrastructure (Limbu *et al.*, 2019). The Gorkha Earthquake damaged 288,856 urban houses out of total 604,930 houses (NPC, 2015).

Nepal's urban reconstruction has moved at a slower pace. As of April 2020, the National Reconstruction Authority (NRA) achieved only 43% progress in the urban areas in comparison to 75% reconstruction in rural areas (NRA, 2020a). Land is one of the most complex urban recovery issues, which includes various factors, such as lack of clarity in ownership, multiple-ownership and the land parcels below the Municipality's minimum threshold size. The speed of recovery has been additionally slower in heritage sites, wherein the major issues are the high cost of traditional construction, unavailability of material and labor, and need for adhering to strict heritage rules which normally contradict with the family’s requirements. There has been a huge overarching issue of access to finance in the overall urban recovery process, with high costs of construction and little or no access to low-interest housing recovery loans (HRRP, 2018a). The Asia Foundation’s Independent Impacts and Recovery Monitoring (IRM) study, carried out from 2015 to 2019, found that only 30% of earthquake damaged houses in urban areas were demolished compared to 57% in rural areas, and many continue to live in partially damaged houses risking their lives. While the pace of retrofitting has been extremely slow, the study indicates that the interest for retrofitting is much higher in urban areas compared to rural areas (The Asia Foundation, 2019). One of the primary barriers to urban housing recovery has also been the lack of a comprehensive policy tackling urban recovery in particular. This has impacted the engagement of international NGOs and the clarity on the roles of local governance (Daly *et al.*, 2017). Globally, it has been recognized that urban crises are more complex than rural and require flexible and integrated approaches. In developing countries, the response is more challenging in case of weak infrastructure, squatter settlements and housing that does not meet safety standards (Schofield, H., Lovell, E., Flinn, B., & Twigg, 2019).

In light of the relatively slow-pace of urban reconstruction due to various cross-cutting issues on a technical, socio-economic and political front, the broader objective of this study is to unravel the constraints in the reconstruction of urban housing sector. The specific objectives are to analyse the reasons and their interlinkages with other factors; to classify the reasons based on their complexity; and to recommend potential mitigating measures.

## **2. Research Methodology**

This study collected information from both secondary and primary sources. The secondary research has investigated policy level literature, published documents from NRA, Housing Recovery and Reconstruction Platform - Nepal (HRRP), other government and non-governmental agencies, bi-lateral and multilateral organisations.

The primary data was collected using Focus Group Discussion (FGD) and Key Informants Interview (KII) surveys. The Urban Technical Working Group (UR-TWG), consisting of partner organizations engaged in urban recovery, facilitated by HRRP and supported by NRA, developed the questionnaire and conducted the survey. The questionnaire was prepared collectively by the UR-TWG based on the identified urban issues from partner's experiences, secondary research and UR-TWG meetings. The districts were selected such that they represented the identified urban issues in diverse kinds of urban areas such as heritage, peri-urban, and core urban areas, areas with high number of RCC buildings, high number of retrofitting cases and Guthi lands.

FGD survey was carried out in December 2019 and January 2020 in Lalitpur, Bhaktapur, Ramechhap, Dhading, Dolakha, Kavrepalanchowk and Gorkha districts. The UR-TWG carried out 14 FGDs with beneficiaries who have not been able to complete reconstruction and retrofitting: 5 with males, 4 with females and 5 with mixed groups of both males and females. The Group also carried out 8 KII with ward officials and 1 with a mason, along with neighborhoods visits. Three interviews were taken with the NRA officials and Central Level Project Implementation Units (Building and Grant Management and Local Infrastructure). The questionnaire for the FGD and KII intended to acquire information on: 1) Identify and prioritize barriers in urban recovery; 2) Identify the solutions to barriers in urban recovery; 3) Identify gender and vulnerability issues in urban recovery; 4) Information access and ward's capacity and engagement in recovery.

For prioritization of the issues raised through the qualitative study, issues were coded using a scoring method, where each existing urban recovery issue from the FGD and KII was coded with a score of "1" and the most critical urban recovery issue identified was coded "99". After coding 50-60 urban recovery issues for each FGD and KII, a score was calculated, by assigning a value of 1 to each issue coded "1" and a score of 1.5 was assigned to each issue coded as "99" i.e. the most critical urban issue in that community. By calculating scores for all identified urban issues, the most critical ones were established.

## **3. Findings**

This section presents first the outcomes of the primary survey and later on the outcomes are collated with the secondary sources of information. First the urban issues are identified and clustered from the perspective of affected households according to their own priority order. In this priority order, different variables of one thematic area are included in various issues. For example, there are a number of variables under the issue of "Finance" such as affordability, access to finance, NRA's grant disbursal practice and debt before earthquake. It is easier to develop strategy according to the issue which necessitated to cluster variables around themes. Issue based analysis is undertaken in a comprehensive way.

### 3.1. Identification and clustering of urban issues

In total, the qualitative study raised about 56 urban housing issues which are related to various sub-issues such as finance, land, construction materials and technology, skill human resources, communication, process and procedures, social acceptability, vulnerable population and so on.

**Table 2: Priority Issues from the perspective of urban earthquake affected houses**

TOP MOST PRIORITIZED ISSUES		OTHER PRIORITIZED ISSUES	
CATEGORY	SUB-ISSUES	CATEGORY	SUB-ISSUES
FINANCE	Affordability	RECONSTRUCTION	Building Permits
FINANCE	No soft loan access	NRA PROCESS	Ward should have more responsibility
NRA PROCESS/FINANCE	Tranche disbursal slow	RETROFITTING	Less technical guidance
LAND	Land ownership documents	RETROFITTING	Misinformation
POLICY	Reconstruction guidelines changed	RETROFITTING	Transfer (retrofitting)
COMMUNICATION	Less information	WOMEN	Less women participation
NRA PROCESS	grievance redressal issue	RECONSTRUCTION	material cost
FINANCE	private loans at high interest	VULNERABLE	No special STA
RECONSTRUCTION	Built 1-room house/small house	NRA PROCESS	Tranche deadline/ time pressure
LAND	Property dispute/multi ownership	LAND	Cadastral inconsistency
MASON	Mason from outside district	RECONSTRUCTION	Set back too much (25m)
WOMEN	Require technical + supervision assistance	RETROFITTING	Require tranche increase
RETROFITTING	Technically not feasible	FINANCE	Debt before earthquake
LAND	Small plots lesser than 2.2 Anna	FINANCE	access to finance
VULNERABLE and HERITAGE	No NRA top up information	COMMUNICATION	Inconsistency in information

Based on the qualitative coding from the FGDs and the KIIs, the 15 top-most critical barriers to recovery from the perspective of the beneficiaries and KIIs are given to the left column of Table 2. To the right are the next set of 15 other issues.

Table 2 shows that the biggest barrier to urban recovery is related to finance. As observed, the top three issues connected with finance are affordability, low access to soft loans and slow

tranche disbursement. For analysing and resolving, all variables were clustered around the issue. On the other hand, the variables have co-linearity with each other. For example, affordability is directly linked with access to soft loan, slow disbursal of housing grant and other variables. From this point of view, it is sensible to categorise them based on issues. Table 3 presents the eleven issue-based cluster of variables which is used for analysis. Some of the identical variables are combined and standardized.

**Table 3: Cluster based priority issues**

CATEGORY	PRIORITY ISSUES
FINANCIAL CONSTRAINTS	Affordability
	Access to finance
	Slow tranche disbursal
CONSTRAINTS RELATED TO LAND	Plot size
	Land ownership
	Land dispute
	Right of Way (RoW)
NRA PROCESSES	NRA's handling of grievance
INEFFECTIVE POLICIES	Engagement of the local governments
	Tranche deadline/ time pressure
COMMUNICATION	Inadequate timely communication
RECONSTRUCTION	Guidelines for single roomed
MASON	Availability of masons
WOMEN	Lower level of women participation
RETROFITTING	Technology, funding and communication
HERITAGE	Compliance with heritage provisions
VULNERABLE HOUSEHOLDS	Addressing the issue of vulnerable households

### 3.2. Dimensions of the priority issues

The eleven constraints that are hindering towards making progress in urban areas are analysed in this section.

#### 3.2.1. Financial Constraint

The financial constraint includes affordability, **poor access to finance** and slow tranche disbursal. Financial constraint is directly related with the poverty incidence which was 41.8% in 1996 decreased to 25.2% of the overall population in 2011. The poverty incidence and affordability are inextricably inter related. The rural poverty is declining faster than urban poverty. The urban poverty fell from 21.6% in 1996 to 10.0% in 2004 but it rose again to 15.5% in 2011 (ADB, 2013). The UN (UN, 2011) found that the average monthly income of urban poor is NPR 4,173. It is impossible for those people whose income is below NPRs 4,000 a month to reconstruct their house. Because the average cost of a house of 600 sq. ft in rural area is about NRP 600,000 and of 1000 sq. ft in urban area is about NRP Two million.

As such families are under perennial debt burden, they do not have **access to credit** from the formal sector and the informal sector charges an exorbitantly high interest rate. The BFIRD, Nepal Rastra Bank's department dealing with bank and financial institution, issued directives

to the Commercial Banks immediately after the Gorkha earthquake that the Kathmandu Valley based households were entitled to receive NPR 2.5 million and non-Kathmandu based households NPR 1.5 million as soft loan (BFIRD, 2015). Such loan was for a period of 5-10 years with 2 percent interest when market rate of loan was above 10 percent. No additional charges were allowed. However, all other banking regulations would prevail which means the bankable property supported by income from the formal source. The urban poor with income in the informal sector could not take advantage of this facility. In the same directive, there was a provision of community loan which can be released from Category D financial institutions for their own members with zero rate of interest. However, other assessment criteria were similar to the normal loan. The deprived communities could not use this provision as well. On the other hand, the financial institutions were not interested in lending money under this provision because of their psychological risk on investment.

GoN introduced “Unified Procedure for Interest Subsidy on Concessional Loan-2075”. Under this provision, the earthquake affected people who could not initiate house construction until 2018 was entitled to receive this loan under community collateral. The loan duration was for five years and the rate of interest would be determined based on adding 2% on the bank's base rate which is normally 5%. It means the loanee would need to pay approximately a 7% rate of interest which is subject to fluctuate. For the Kathmandu valley, this loan package was too small as minimum reconstruction amount may exceed NPR 2 million. Only 200 households received soft loan under this scheme (Nepal Rastra Bank Research Department, 2018).

The survey respondents pointed out that they have only been able to access loans from local merchants at very high interest rates. Pre-earthquake debt existed in many cases, and the interest rates varied, ranging from 10-14% from the Commercial Banks and up to 21% from cooperatives whereas the merchant interest rate exceeded 24 percent. Access to soft loans has been recognized as one of the most urgent needs to reconstruct.

The **slow tranche disbursement** may have happened due to some administrative problems of disbursement but such problems are short lived not more than 2 months or so. Had there been such problems, it should have impacted both urban and rural districts. The progress in rural districts except the Kathmandu Valley is more than 75% whereas the Kathmandu Valley progress until 02 May 2020 remained 43% given the exactly similar administrative and disbursement set up (NRA, 2020a). The statistics reveal that the disbursement which respondents mentioned in their response is not the fundamental reason for delaying the progress.

### *3.2.2. Constraint related to land*

Under land, there are a number of sub-issues which are: land size, land ownership, land dispute, compliance with heritage regulations, and Right of Ways (RoWs).

The minimum official threshold of **land size** to construct a house is 860 sq. ft. (2. 2 anna). The municipality does not give approval to build the building below this threshold. Many of the damaged houses in the urban city core have land below the threshold which is causing delay in reconstruction. Wily (Wily, 2008) mentioned about the land information system in Nepal that "what we know is that we don't truly know! Statistics are out-of-date, contradictory by source,

and incomplete. There are also many changes at the moment, including movement to urban areas, which makes facts unreliable." Despite the number of attempts of land reform, the land information has remained extremely weak. The dwelling size in urban area decreased from 584 sq. ft to 571 sq. ft since 2003/04. In the case of the Kathmandu Valley it has decreased from 589 to 555 sq. ft. CBS (CBS, 2012) shows that there are 5 rooms in average and 571 sq. ft of dwelling size with 1472 sq. ft of housing plot. In the Kathmandu Valley, the average number of rooms was found as 4.8, with dwelling size of 555 sq. ft and housing plot of 1224 sq. ft. The average housing plot size means that there are about half the houses below 1224 sq. ft. and minimum threshold area of land is 860.6 sq. ft. The municipality does not interfere if the given dwelling unit existed there before enforcement of this provision. In addition, if the dwelling is within the officially declared heritage site, this provision is exempted. Based on the anecdotal evidence, there should be around 15% housing stock which have land area below the official threshold size who could not secure approval from the municipality.

There were a number of different **land ownership** status such as *Guthi* land where the land ownership belongs to a certain shrine and the tiller is considered as a tenant. Similarly, another type of land ownership was *Birta* (traditionally state given land to government officers in lieu of their services to the state). The other category was *Swobasi* and *Benissa* where people use the public land for generations without land ownership certificates (GoN, 2020). The land ownership was prerequisite at the initial stage of NRA which was relaxed later on. The NRA promulgated regulation to provide land ownership for homestead based on the geographic region. In the Kathmandu Valley the limit was 127.16 sqm, all district headquarters except the Kathmandu Valley, the limit was 190.74 sqm, for all the rest locations the limit was 317.90 sqm. In such a way, the NRA resolved land ownership issues. However, the procedure was promulgated on 2016 May 30 after about one and half years of NRA's establishment. It was revised and accommodated all land concerns on 2019 February 11 (NRA, 2016a) which shows NRA resolved these issues but it delayed the reconstruction.

**Land dispute** due to un-delineated land boundary is another factor in the urban areas particularly in the city core of the Kathmandu valley which is delaying the reconstruction process. The Kathmandu city was built over the period of thousands of years and there are houses which are much older than one century. Most of the current inhabitants in the core city are not aware about their land boundaries and manually drawn cadastral maps do not show the exact extent of land. Under these circumstances, about 10% of land owners who have not constructed their houses belong to this group.

There are four main government entities who set **Right of Way (RoW)** standards and there are 10 RoW standards as presented in Table 4. As shown in Table 4, the Department of Roads (DoR) standards are not applicable to the urban roads because DoR administers only Highways and Feeder Roads. The other standards promulgated by MoUD, Kathmandu Valley Development Authority (KVDA) and MOFAGA are not compatible with each other. As per KVDA's standards minimum RoW of Urban Roads is determined as 11 m. whereas MoFAGA and MoUD standards suggest that lowest standard RoW is 6 m and in exceptional cases it can be lowered down to 4 m with setback width of 1.5 m. There is another standard for the heritage settlements which follows existing footprints but the setback width is 1 m.

**Table 4: Right of Ways (RoW) Determined by Various Governmental Agencies**

Agency	Highway (m)	Feeder (m)	District (m)	Arterial /Trunk (m)	Sub-arterial (m)	Collector (m)	Local (m)	Ring Road (m)	Local Min (m)	Feeder (Urban)
KVDA 2064	50				22	14		62		11
DoR 2070	50	30	20							
MoFAGA 2072							6		4	
MoUD2 076				50	30	20	10			

Source: (DoR, 2013), (KVDA, 2007), (MoUD & MoFAGA, 2015)

Under the above circumstance, the urban except heritage settlements are affected with these provisions. Moreover, the KVDA has identified streets which need to follow particular RoW standards. Such areas cannot follow the previous housing foot-print for reconstruction. It means the building may have been constructed leaving 2 m from the central line but according to the KVDA standard, they may need to leave 5.5 m which means additional 3.5 m. For a small parcel of land of 80 sqm, if the building line is defined as 3.5 m, there is not much land left for the house construction. A number of households are affected with this provision. In heritage sites set back distance is defined as 1 m which also creates problems for them.

The RoW standards conflict with each other and these provisions leads the land size below the minimum official threshold area eventually making municipal approval process difficult.

### 3.2.3. Ineffective handling of grievances

The “Grievance Management related to Reconstruction and Rehabilitation Guidelines, 2017” (NRA, 2017b) sets procedure for handling all grievances with regards to the private housing grants. The grievances were handled in four stages. In the first stage, grievances were collected from 14 severely impacted districts with submission deadline until 16 July 2017. Until then 216,285 grievances were registered. Out of which 25% were declared as beneficiaries and rest of the households were declared as non-beneficiaries (NRA, 2020a). However, the NRA’s Ninth Steering Committee meeting decided to resurvey those households which were declared as non-beneficiaries by the Executive Committee (NRA, 2017a) which was the reason for conducting the second survey. Consequently, more than 65% of total grievant were declared as beneficiaries in the second survey. However, as political environment started to become more stable, the beneficiary to registered grievances decreased to 1:0.09 in the third stage and 1:0.13 in the fourth stage. Ultimately the grievance resurvey procedure concluded by June 2020 (NRA, 2020b).



### *3.2.4 Ineffective local government policy and tranche deadlines*

The local governments complain that they are deprived from the engagement in the reconstruction process. NRA had to initiate its activities in Dec. 2015 in the absence of local governments. The local government's elections were held on 14 May, 28 June and 18 Sep. 2017 which means NRA had to operate about one and half years without them. However, the agreements which the GoN concluded with donors assumed the existence of the local governments. It was the responsibility of the local governments to conclude partnership agreements with the beneficiaries. There was only one village secretary and they used to operate from the district headquarters during and even after the Maoist war which concluded in 2006. NRA relied on bilateral, multilateral donors and NGOs for required human resources in each Village Development Committee, a lowest level of local government which existed until 2015's promulgation of a new constitution (GoN, 2015). After the election, NRA initiated MoU with the newly formed Municipalities and Rural Municipalities from 2018 November with the objective of delegating some of the NRA's powers and to kick off collaboration with them. The MoU delegated authority of administering Engineers and other technicians to the local level. However, the local governments were willing to handle the housing grant which was not possible due to the Federal financial rules of the Office of Comptroller General.

For the NRA, an institution formed under the sunset law, it was inevitable to **set deadlines for disbursing tranches**. NRA imposed deadline on 12 July 2016 (NRA, 2016b) primarily to accelerate the progress in housing sector. Until 10 July 2016, partnership agreement was concluded with 226,149 households and only 26,726 households received first tranche. (NRA, 2016c). With such a dismal progress, it was essential for NRA to pressurize beneficiaries to make faster progress which worked to some extent. However, NRA kept on extending the deadline for allowing all affected households to reconstruct their houses. At present, the deadline extended to Jan 2021.

### *3.2.5 Communication*

The NRA communicated its messages through Radio, various FM Radios and Televisions, national and local newspapers. In addition, messages were communicated through Village Secretaries, Engineers and Social Mobilisers. In the NRA's understanding, no gap was expected. In addition, NRA also established toll free numbers for receiving complaints and for providing information. However, despite all these efforts, if the beneficiary households reported deficiency in communication, the NRA had to develop a different form of communication strategy after validating the survey opinion.

### *3.2.6. Guidelines for single-roomed building*

The NRA's general assumption was that the people construct their house according to their need which was the reason for NRA not fixing minimum threshold size. The Department of Urban Development and Building Construction (DUDBC, 2015) promulgated design catalogues, the smallest building size was 15.88 sqm. However, some of the households constructed too small single-roomed houses with different motives. The absentee house owners reconstructed one-roomed houses for their occasional visit to their ancestral village. The households with large family size with low level of affordability also constructed single roomed

houses for satisfying NRA criteria while staying in the old vulnerable house which had to be demolished. Households with no affordability were forced to construct within the grant limit. The single or double occupants' households also constructed one roomed house which was sufficient for them. Against this background, NRA announced a new requirement of 120 sq. ft (11.15 sqm) as minimum threshold area, However, the household would need to construct a kitchen and toilet separately. Hence the respondents point that NRA's delayed announcement was correct but it had logic behind doing so.

### *3.2.7. Availability of Masons*

It was estimated that reconstruction of private housing would require 65,000 of skilled masons. Most of the masons upgraded themselves while working as construction laborer without having any formal training on earthquake resistant construction technology. To improve the situation, the NRA's partner organisations provided training to around 20,000 masons until the end of 2016 whereas NRA estimated that it will require additional 45,000 masons for severely affected 14 districts and 12,000 masons for moderately affected 18 districts. It means altogether it would require around 74,000 masons. NRA along with some partner organisations provided training to 70,000 masons until the end of 2019. It means NRA trained masons according to the requirement. However, the demand for and supply of the masons was not matching. Secondly, not all trained masons may have worked. Thirdly, some masons who were trained under the NRA's banner went abroad for employment. To compensate for this shortfall, some masons from non-NRA districts also arrived which met the demand. Moreover, in the Kathmandu Valley and other urban areas there was no dearth of masons as the masons arrive from India and other parts of country in response to the market demand. Therefore, mason was not that critically detrimental factor for the sluggish progress in the urban areas.

### *3.2.8. Women participation*

One of the issues that arose from the study was that women owners require more technical and supervision assistance on site through the reconstruction process. A HRRP report deliberated about the participation of women in reconstruction which highlighted that although reconstruction has provided an opportunity for women, there is still gender imbalance and discrimination in their engagement. Out of the 376 female respondents who underwent mason-training, 23% said they are not paid equal wages as their male counterparts (HRRP, 2018b). However, NRA's Policy mandates equal ways for equal work

### *3.2.9. Support to vulnerable households*

NRA approved the "Working Procedure for Identifying Vulnerable Households – 2074" on 25 Jan. 2018 (NRA, 2018b). Among 18,505 vulnerable households, more than 3000 were supported by NRA's partner organisations and additional 7000 may have constructed their houses by using their social capital (NRA, 2020a). Around 10,000 vulnerable households are still unable to reconstruct their houses until the middle of 2020. The NRA intended to corroborate databases from the local governments but they did not submit until the end of April 2020. In order to resolve this problem, NRA mobilized a team of "Social Mobilisers" and trained masons for supporting the vulnerable households. It means NRA has taken appropriate

measures for their support but it is self-evident that it adopted such measures after elapsing a considerable time which should not have been the case.

### *3.2.10. Retrofitting*

The respondents have certain logic behind the issue of retrofitting. First of all, NRA issued a technical manual in June 2017 whereas the households were declared as retrofitting beneficiaries from the early 2016. As it was issued in 2017 June there was no possibility of kicking of retrofitting during the rainy season. Engineers could not become self-confident even after receiving the training. The retrofitting is technically demanding intervention and NRA's distribution of engineers could not match with that requirement. The engineers would require technical backing which was lagging. Due to all these reasons, the NRA was not technically prepared for handling retrofitting.

### *3.2.11. Compliance with Heritage Provisions*

There are six World Heritage Sites: Hanumandhoka, Patan and Bhaktapur Durbar Squares, Bouddha, Changunarayan and Swyombhu where heritage provisions are effective. In addition, NRA has declared other six locations as heritage settlements: Bungmati, Khokana, Sankhu, Nuwakot, Gorkha and Dolakha (NRA, 2018a). NRA has allocated an additional grant of NPR 50,000 for those buildings which comply with the provisions as mandated by Working Procedure on Heritage Settlements (NRA, 2019). The provisions include 80% ground coverage by building, maximum building height of 35' and maximum four floors, setback of 1 m on the front side, façade complying with Nepali traditional architecture, traditional tiled and sloped roof including others. The households find these provisions difficult to observe. House owners intend to construct buildings taller than 35' to match with their space requirement. The most crucial issue is the sloped roof whereas the households prefer flat roofs for enjoying sunshine during the winter season, for drying agricultural outputs and clothes. The non-compliance of building code means no progress in housing reconstruction.

## **4. Discussions**

Altogether 11 issues were discussed in the findings section. Out of them, financial and land related constraints are structural and the rest are the procedural issues. The procedural issues can be resolved with improved strategy within the given legal environment. However, the structural issues require matching political and socio-economic effort. In this section, structural and non-structural issues are discussed separately.

### *4.1 Structural Issues*

The poor households have small plot size and they also have modest access to finance. This is a real structural problem which the NRA was not able to resolve. Their property is neither bankable nor they have the ability for debt servicing. The commercial banks resisted investing to such a group of people despite the government's directives. With this respect, various different countries have resolved the urban housing problem in different ways.

The Gujarat State Government established the Gujrat State Disaster Management Authority (GSDMA) after the 2 weeks of 2001 Bhuj Earthquake of 7.7 magnitude (Johnson and Olshansky, 2014). The state provided funding to owners of 82 percent of the expenditures of

core houses. The Government of India (GoI) provided INR 200,000 as a housing grant. Additional INR 200,000 was offered as a housing loan with two years of gestation period for repair and reconstruction of damaged houses and shops at an interest rate not exceeding the prime lending rate (Thiruppugazh, 2016). GoI also exempted the central excise duty on cement and steel that was used for relief and reconstruction work for the period until 2005. The stamp duty for registration in respect of purchase of land for rehabilitation projects and royalty on building materials such as cement, clay, stone were exempted. These interventions are similar to Nepal's support packages which will not support urban housing problems directly in Nepal.

The reconstruction of 2008 Wenchuan Earthquake in the People's Republic of China (PRC) was a centrally led operation. The reconstruction of the destruction caused by 7.9 Mm (EERI, 2008) tremor was planned and reconstructed by the central government which costed US\$147 billion (Johnson and Olshansky, 2014). The gigantic operation was funded by loans from financial institutions, transfers from the central government, help from eastern provinces under the “pair assistance” program, and land-based financing and land swaps (Xiao, Liu and Feldman, 2018). This is a highly successful model which is extremely difficult to replicate in Nepal and other countries due to limited financial, technical and managerial capacity of the government.

Two consecutive earthquakes 2010 Canterbury and 2011 Christchurch earthquake of 7.1 Mm and 6.3 Mm respectively (CERA, 2012) & (Chang *et al.*, 2014) damaged US\$32 billion worth of property, close to 20 percent of New Zealand's annual gross domestic product (Law, 2015). The Earthquake Commission (EQC) which was primarily formed for housing insurance was asked to take responsibility for the repairs or rebuilding of insured homes rather than simply paying cash settlements to homeowners (Brownlee, 2010). New Zealand's practice of insuring housing stock is something which can be replicated for the future.

Unlike all models explained above, Japan linked reconstruction with their long-term planning system which made this operation most sustainable. The 1995 Great Hanshin Awaji and 2011 Tohoku earthquakes were the further continuation of the Japanese history when such events recur every now and then. The Japanese Government operates with two major planning tools—redevelopment and land readjustment. The reconstruction is financed through the sale of additional floor space beyond replacing what was there before (Sorensen, 2002). Land readjustment, which sub-divides existing parcels, is a complex process involving modification of property boundaries to widen roads and to provide new open spaces and other public facilities. Under land readjustment, each landowner loses some land area, but the new infrastructure and improved accessibility add value to each parcel. These programmes use reconstruction as an opportunity for transforming settlement structure and infrastructure. It promotes high density redevelopment which results in raising additional land. Secondly the intervention takes place with joint ventures between the central and local governments (Johnson and Olshansky, 2014).

Indonesia handled the largest earthquake ever recorded of 9.1. and 9.3 Mw in 2004 Sumatra-Andaman Earthquake and 2006 Java Earthquake respectively. The national development planning agency, Bappenas, prepared the Master Plan for Rehabilitation and Reconstruction which emphasized the principles for a community-oriented, participatory, comprehensive, and

transparent process. They were more effective over the long term because the plans have full community support” (Rehabilitation and Reconstruction Agency, 2005). Two organisations were promoted: The Multi-Donor Trust Fund (MDTF) and the ministerial-level Reconstruction and Rehabilitation Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]). BRR implemented through the contractors (Rehabilitation and Reconstruction Agency, 2005). The community was involved contractually which was highly successful. In April 2009, the BRR reached the end of its four-year life, and its responsibilities passed to local, provincial, and central government agencies. In the reconstruction of the 2006 Java Earthquake as well Ache model of community contracting was adopted.

Based on analysis of India, China, New Zealand, Japan and Indonesia’s handling of various earthquakes, Nepal’s intervention was closer to the Bhuj Earthquake of India. Nepal adopted an owner driven approach with some housing grant which did not work in the reconstruction of urban housing. It is almost impossible to replicate the Chinese practice which is extremely capital intensive and it is impossible to replicate in Nepal where the government’s authority is restricted by various legal instruments whereas Chinese government has a number of leverages which enables them to reconstruct effectively. Indonesia was quite exceptional because of the unprecedented energy generated by 9.3 Magnitude earthquake flattened all houses and infrastructures. In Nepal, the destruction took place sporadically which made it difficult to replicate the Indonesian model. Nepal may replicate the combination of Japanese and New Zealand approaches for the future. The Japanese approach of land pooling and reconstructing high rise buildings and allowing developers to sell surplus space to the private sector allows planning roads, parks and other amenities more systematically. Positive points of this approach are: it is not necessary for an individual to invest and construct the house which relieves poor urban dwellers to make investment. They will get back the same space of building area as they had been using earlier. The community will have enhanced urban amenities such as roads, green areas, parks etc. This paradigm shift would relieve all problems that were discussed earlier. However, this approach is rather slow and requires the urban dwellers to stay in transitional shelters for a long time. The New Zealand model of insuring houses would lessen the problems. However, a majority of houses in Nepal’s urban areas are older than one century which may not be accepted by the Insurance Company. Under those circumstances, only relatively new houses will be eligible for insurance which will not resolve the problem of core urban centres of Nepal.

#### *4.2. Non-structural issues*

There are nine non-structural issues which can be addressed either with improved strategy or enhanced working efficiency. Among them grievance handling is the issue which has some structural element but largely contains managerial characteristics. Nepal went through a turbulent political transition during the first three years after the 2015 Earthquake. All political parties wanted to use reconstruction from their political interest. The Ninth Steering Committee’s decision for resurveying households which were already categorised as non-beneficiaries indicates that the decision was not purely technical. However, with some level of political will power such problems can be resolved. The limited involvement of local government was also due to their absence at the initial stage of NRA. When they were elected, the reconstruction activity was already in the full swing. However, in the future they will

undoubtedly play a catalytic role in the event of such a natural disaster. NRA launched a massive scale of communication drive but still there could be some scope of improvement. The guidelines for the single roomed building were not issued because of the assumption that the households would construct houses according to their requirements which did not turn out to be true. Similarly, availability of mason appeared to be too huge in the beginning but with NRA's intervention in conjunction with other partner organisations' effort this problem was also resolved.

It appeared that the NRA could have initiated experimentation of various retrofitting methodologies immediately after its establishment. The retrofitting manual was published after elapsing considerable time. This is the area in which the NRA could have acted further effectively. Similarly, the next issue was support to vulnerable households which was also delayed almost toward the NRA's concluding phase which could have kicked off at the initial stage.

## **5. Conclusion**

The study revealed that urban issues are very complex and often intertwined. This study revealed that there are some structural issues which are beyond the scope and capacity of the National Reconstruction Authority (NRA). The issues of land and access to capital are in the root of the urban housing problem. Considering the Government of Nepal's financial capacity, it is sensible to follow the Japanese model of redevelopment and land adjustment. For this the Municipalities should prepare the master plans with the technical support from the Ministry of Urban Development. The Federal Government should subsidise the cost of redevelopment but the housing development should be financed through the revenue generated from the proceeds of the additional space. This proposal resolves the problems related to land and finance. The procedural issues are linked with good governance. Until all echelons of the government and civil society feel the sense of accountability, the procedural issues persist. However, the NRA like reconstruction authority should pay proper attention on how damage could be minimized from adverse circumstantial persuasion.

The end.

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