Housing Needs Framework and its Operationalization Using Census Data

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In order to ensure security of shelter for the Filipino family and provide affordable and decent housing, especially for the poor, Philippine Development Plan earmarked the goal of meeting rapidly growing housing needs for every region. For this, government and private sector conceived strategies and convergent action plan. Its success, however, largely depends on the reliability of existing housing statistics and appropriateness of framework to guide estimation procedure.

The Framework

The United Nations defines housing needs as the number of conventional dwellings or other suitable living quarters that need to be constructed or repaired in order to bring housing conditions, as of a particular point in time, up to nationally adopted standards, plus the number that need to be constructed, repaired and/or maintained to ensure that housing conditions remain at the standard level over a stated period of time. UN has broadly classified the principal components of housing needs in developing countries to three major categories, namely:

1. Accumulated or current needs which exist at the beginning of the period covered by the estimates addresses the provision of acceptable dwellings for repair or replacement required for 1) households without shelter; 2) households occupying unacceptable type (salvaged materials); 3) households occupying acceptable type in need of repair or replacement(dilapidated/condemned units); 4) involuntarily doubled-up households in acceptable type (to cover for the reduction of housing density to a desired level).

2. Recurrent or future needs which are expected to arise during the period covered by the estimates addresses the provision of acceptable dwellings for 1) projected increase in the number of households; and 2) repair or replacement of acceptable type which will be lost from the inventory.

3. Allowance in the estimates for vacant dwellings

It is recognized by UN that not all the above components are taken into account by all developing countries in estimating housing needs. The components of the future needs are universally applicable since they represent the housing required for population growth, replacement of housing as it reaches the end of its useful life and recurrent repairs and maintenance required to keep the housing stock up to established standards. However, the components to be considered in estimating accumulated needs will vary according to the housing conditions in the country concerned. In setting up of targets, UN emphasized that it is more important to target the immediate replacements of inventory losses as these happen, because not doing so will contribute to serious shortage of housing and lead to deterioration of the housing stock. Also, provision for new housing unit for doubled-up households may not be as urgent as those housing units required to replace dilapidated and unacceptable units, and provide housing for newly formed households.

The country's shelter sector authority, Housing and Urban Development Coordinating Council (HUDCC), makes use of a similar framework. It has two components: provision for housing backlog and new households formed due to population increase. Backlog covers for provision of acceptable housing units for a) double occupancy; b) households in displaced units needing relocation from danger areas, those living on land which is needed for a major infrastructure project or in areas where there is a court order for eviction and demolition; c) homeless or those living in parks, along sidewalks and all the rest without any form of shelter; and d) upgrading or those needing improvement on land tenure status, access to basic services and house condition.

The two frameworks differ in many ways. Besides difference in terminology, composition of backlog as used by HUDCC is different from Accumulated Needs of UN component method. Also, HUDCC did not consider replacement of dilapidated structures at the start of Plan period. Next, the agency has no provision for allowance for inventory loss of housing stock in succeeding Plan periods. UN Component also specifies that the term backlog is the failure to meet housing requirements as they occur which equals or even exceeds the existing supply of housing in some countries. Therefore, housing backlog is the difference of housing needs and accomplishment at a specified time, the unmet or unaccomplished needs.

## Recommended framework on housing needs

The proposed framework for housing need is an adaptation of the UN Component method to suit local conditions. It has two dimensions: (i) construction of housing units; and (ii) housing support and services. The rationale for this proposal is to identify the "physical" aspect of the housing industry and improve the environment for healthy living. Both are addressed by government's housing assistance program which can be in a form of cash through loan

Figure 1: Housing needs framework for construction of housing units

for house and/or lot, temporary shelters, community improvement, etc. It can be noted that the framework has household as the unit of measurement and covers all households not only the housing beneficiaries of government housing programs. Major composition of framework of housing needs for the construction of housing units is as follows:
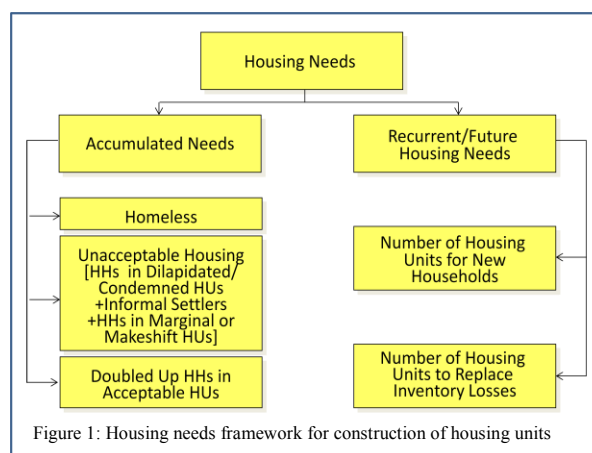
1. Accumulated or current needs - housing needs that exist at the beginning of the plan period covered by the estimate, and include number of conventional housing units (HUs) required for a) households without shelter (homeless); b) households occupying living quarters of an unacceptable type like those in dilapidated or condemned conventional housing units, informal settlers and those in marginal HUs having makeshift or salvaged type of materials; and c) doubled-up households in acceptable units.

2. Recurrent or Future needs – housing needs expected to arise during the Plan Period covered by the estimates to provide for a) new households covered by the Plan Period; and b) households living in units that will be replaced due to loss from inventory during the period covered by the estimates. Lost from inventory is due to obsolescence, demolition in connection with slum clearance, urban redevelopment, reconstruction of towns, construction of highways, industrial installations, dams, etc., destruction by disasters like floods, fire, earthquake, typhoon, accidents, etc.

The UN components pertaining to "Reduction in levels of density in acceptable living quarters to a desired level" and "allowance for vacant dwellings" are not considered in the recommended framework. There is no need to consider the "reduction of density to a desired level," because all doubled-up households have already been considered, therefore, the overcrowding due to doubling-up may have been eased. In the "allowance for vacant dwellings," it was observed that in census years 1970, 1980, 1990 and 2000 vacant Hus are counted. Therefore, estimates would be limited to occupied dwellings.

For the Housing Support and Services, this is a new attempt to separate the social aspects of housing in the estimate of housing needs. The proposed framework which may be looked into more closely involves Tenure Security, Housing Finance, Site Development, Slum Upgrading and House Repair. In this paper, this housing need dimension will not be discussed.

Figure 2: Housing needs framework for Housing Support and Services
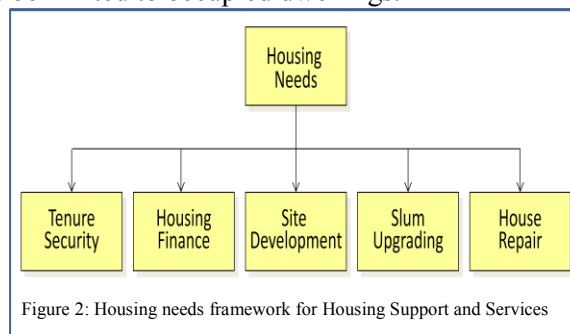
Operationalization of framework of housing needs for construction of housing units

The estimation made use of 2000 Census of Population and Housing (CPH) results as benchmark data for extrapolating estimates of housing needs from year 2007 onwards while 2007 Census of Population (POPCEN) which has preliminary release on population count was used as the jump-off point in projecting households (HHs) at the regional level. The step by step procedure in the estimation of housing needs is enumerated below:

1. The 2000 CPH complete census file (100% coverage) was re-tabulated into the three tables with the purpose of identifying the year built of housing units (HUs), the identification of selected indicators as input to the identification of unacceptable structures and HHs and the actual number of HHs residing in these HUs. These are: Table 1. Type of Construction Materials of HUs by Year built; Table 2. Type of Construction Materials by Selected Indicators of HUs; and Table 3. Number of HHs by Type of Construction Materials of HUs by Selected Indicators. Prior to the identification of type of construction materials, all HUs were reclassified into the construction materials category for roof and walls: 1) Strong materials; 2) Light materials; 3) Salvaged/makeshift materials; 4) Mixed but predominantly strong materials; 5) Mixed but predominantly light materials; and 6) Mixed but predominantly salvaged materials. The reclassification was done in order to describe HUs based on combination of construction materials of the walls and roof. This classification can be used to tabulate the characteristics of the housing units in accordance with selected indicators, using the type of construction materials as the common variable in these tabulations.

2. Four selected housing indicators are identified from the census file in the following hierarchical manner to ensure mutual exclusivity:
   Indicator No. 1 - Homeless - the HUs were identified by their codes in the type of building under the "Others" category as published in the CPH. HHs under this category are those in living quarters found during the census that were not intended for human habitation like those staying under the bridge, in caves, sleeping in wooden carts, staying in abandoned vehicles and agricultural/industrial/commercial structures.

Indicator No. 2 – Dilapidated/condemned - the structures were identified by looking at the census data under Type of Repair categories under Dilapidated and condemned. These structures are to be replaced during the planning period.

Indicator No. 3 - Informal settlers – these were identified through the tenure status of the lot occupied by the HUs. All those found to be under tenure status of rent-free lot without consent of the owner are identified as belonging to the informal settlers as an interim description of term.

Indicator No. 4 – Marginal – These include those classified under "Others HUs" category (that is, neither falling under any of the above indicators) and at the same time, classified in the type of construction materials used under the "makeshift/salvage materials" and "mixed but predominantly makeshift/ salvaged materials" categories.

During the time of the study, number of informal settlers and HHs living in marginal housing are combined as one because official definition of informal settlers is yet to be established. Based on the provincial tabulations of the three tables, regional totals were aggregated by the selected indicators to obtain national totals. The results of Table 3 (Number of HHs) minus the results in Table 2 (Number HUs) in the special tabulation by construction materials yielded the doubled-up HHs, also classified by construction materials.

3. Replacement rate was derived based on the cohort population of buildings anchored on the year the housing unit was constructed. Initially, only the computed rate at the National Capital Region was utilized in the estimation, that is, assuming around 1.33% is true to all regions or a housing unit lifespan of 75 years, on the average. As an improvement in the estimation procedure, the computation of replacement rate by region was generated using the 1990 and 2000 census data.

4. For comparison with future estimates, computation of the number of HHs and number of HUs as of July 1, 2000 were done by applying the percentage share of tabulations to population projection as of July 1, 2000, that is, 76,946,500. Applying the same procedure to regional figures is done to get the regional estimates.

5. Since the housing needs estimation requires the use of number of HHs to be able to estimate the number of HUs occupied at the time of census, there is a need to estimate the number of HHs and the housing needs as of July 1, 2007. Using average household size method, estimated number of HHs by region is generated using 2000 regional average household size. However, before this was done, the regional composition of 2007 POPCEN had to be matched with the regional composition of the 2000 CPH because there were some changes in the provincial composition and that 2007 POPCEN has yet to come up with the number of HHs in its final tabulation.

6. To determine the number of HUs as of July 1, 2007, the density of the 2000 HUs was computed based on the 2007 regional configuration, by region and by construction materials. Using the density of housing generated from 2000 CPH, the number of HUs was estimated by region. The density by construction materials was also computed for use in estimating HUs by type of construction materials in 2007 and for 2008, 2009 and 2010.

7. For the sake of trend analysis at the regional level, with the new composition of some regions, estimates of HUs, number of HHs and doubled-up HHs were also done as of July 1, 2000 using the 2007 regional composition. The 2000 data will provide the basic data to monitor the extent of accomplishment of the housing program in the next census. It may be mentioned, that when the accumulated needs of 1990 have not been met between 1990 and 2000, then this becomes part of the "backlog" in housing construction.

8. During the time of study, official revised population projection has not been released. Hence, study made its own population projection using the exponential growth rate formula. After the population is determined at the national level for 2008, 2009, and 2010 based on the growth rate between the two censuses (2000 CPH and 2007 POPCEN), the national estimate is regionally distributed following the pattern of the distribution in 2007. Next, the number of HHs is calculated using the derived household size of the decomposed 2000 data that follows the 2007 regional composition of provinces. Then the housing density of the region as obtained from the 2000 CPH (computed from the decomposed regional classification) is now applied to this projected household to determine the number of HUs.

9. Consolidated result of the selected indicators is generated using projected population 2008-2010. It is not correct to present the levels of estimates by year and then average the total because it will not show the increments of the annual housing needs, thus only the difference between two estimates is presented so that the total housing needs for period 2007-2010 can be aggregated at the end. The motivation to this is that at the start of the inventory of housing stocks, all unacceptable structures are to be replaced including the doubled-up HHs or based on the objectives of the housing program whether to hasten the elimination of all unacceptable structures within the planned period or target only what the government is able to provide. Furthermore, the annual increments of unacceptable structure contribute to the addition of unacceptable structures at the end of the period which can contribute to additional backlog for this subcomponent. Based on the UN literature on Housing Needs Estimation, the annual construction, which is addition to the present stock, follows the pattern of structure according to the type of construction materials and type of building of the existing stocks. Thus, only increments are added to the original inventory. January 1 estimate of housing needs was also prepared for years 2007 to 2010 as reference period.

10. As in the original paper, total housing needs estimates is 3,633,972 households. However, with the adjustment of <u>Allowance for Inventory losses</u> based on regional replacement rate computed from data on Year Built from 1990 and 2000 CPHs, total housing needs jacked up to 5,493,187 households.

Table 1. Total Housing Needs Estimates by Major Components: 2007 –2010 (Adjusted)

(Unit in Household)

Components of Housing Needs	Initial Needs (As of Jan 1, 2007)	Incremental Needs as of December 31				Total Housing Needs CY 2007-2010
		2007 (Jan 2-Dec 31)	CY2008	CY2009	CY2010	
Total Housing Needs	**1,273,395**	**1,025,685**	**1,046,608**	**1,067,963**	**1,079,537**	**5,493,187**
A. Accumulated Needs	<u>1,273,395</u>	<u>25,981</u>	<u>26,507</u>	<u>27,051</u>	<u>27,603</u>	<u>1,380,537</u>
1. Homeless	11,937	244	248	254	259	12,942
2. HHs in Unacceptable Housing	847,373	17,288	17,640	18,000	18,368	918,669
a. Dilapidated/condemned	134,931	2,753	2,809	2,866	2,925	146,284
b. Marginal Housing (including rent-free lot without consent of owner)	712,442	14,535	14,831	15,134	15,443	772,385
3. Doubled-up HH in Acceptable Hus	414,085	8,449	8,619	8,797	8,976	448,926
B. Future/Recurrent Needs		<u>999,704</u>	<u>1,020,101</u>	<u>1,040,912</u>	<u>1,051,934</u>	<u>4,112,651</u>
1. New Households		330,451	337,194	344,072	351,092	1,362,808
2. Allowance for Inventory losses		669,254	682,907	696,840	700,842	2,749,843

Note: Totals may not add up due to rounding-off

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Table 2. Housing Needs Estimates by Region: 2007-2010

(Unit in Household)

Regions	Total	Accumulated Needs	Future needs	
			New Households	Allowance for Inventory Losses
Philippines	5,493,187	1,380,537	1,362,808	2,749,843
National Capital Region	723,063	418,328	172,796	131,939
Cordillera Administrative Region	74,711	10,035	24,612	40,064
Ilocos Region	259,842	48,323	76,271	135,248
Cagayan Valley	197,030	29,582	51,064	116,384
Central Luzon	518,639	112,675	151,681	254,283
Calabarzon	582,052	158,723	172,262	251,066
Mimaropa	182,715	27,696	42,112	112,908
Bicol	349,379	66,307	80,869	202,202
Western Visayas	478,490	90,111	109,621	278,758
Central Visayas	389,597	78,934	102,979	207,684
Eastern Visayas	277,576	44,759	65,339	167,478
Zamboanga Peninsula	221,859	30,199	49,072	142,588
Northern Mindanao	253,746	54,446	62,111	137,189
Davao Region	281,186	67,911	67,413	145,863
Soccsksargen	271,447	47,291	58,417	165,739
Caraga	164,394	38,025	34,903	91,466
Autonomous Region of Muslim Mindanao	238,025	57,191	41,286	139,548

Note: Totals may not add up due to rounding-off

Future Directions:

An improvement of housing needs estimates will be done based on the release of:

1. Regional household size from 2007 PopCen
2. Official Population estimates for years 2000-2016 or the official Household Projection for years 2000-2016
3. Further refinement on the derivation of allowance for inventory losses.
4. Data capture of total informal settlers using new definition as proposed. This is by map-overlay as post-census activity. As recommended in the study, map-overlay will be effected through a Memorandum of understanding/agreement between HUDCC and National Statistics Office. Maps will be generated in cooperation with the local government units who can identify accurately the informal settlers by criteria as mentioned.

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