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House Consolidation in Tondo

MILA A. REFORMA*

The physical environment of Tondo is changing at a dramatic pace. Two-story structures built out of concrete and wood are now visually, perhaps, the most conspicious and characteristic feature of the area. The physical components of the project, particularly the introduction of infrastructure and utilities, have been directly responsible for the dramatic transformation of the overall Tondo environment. The change, however, has acted as a powerful stimulant for individual families to undertake equally large-scale improvements in the quality of their structure. By all current indications, the residents of Tondo are validating the assumption that the solution to the squatter problem lies in a policy based upon the provision of the elements of environmental security — appropriate locations, tenancies and investment opportunities — rather than on the direct construction of houses. The results of a study that measures the changes in housing characteristics of Tondo families indicate that not only are the residents investing resources for improvements, but are doing so at a rate reflective of the pacing of the project and at a greater extent than families living elsewhere. But even as the success of the Tondo project is being documented, the relatively novel approaches used have raised a few issues that require examination for purposes of applying the same concepts in other slum and squatter settlements in the country. Foremost of these issues include the need to examine the appropriateness of (1) lot sizes being awarded; (2) the emphasis being given to the objective of minimum dislocation of structures; (3) level of services being provided; and (4) the Housing Materials Loan Program.

Introduction

In retrospect, the design of the Tondo upgrading project puts forward a number of implicit assumptions, the validity of which is continuously being tested by the Research and Analysis Division (RAD) evaluation team of the National Housing Authority. Implicit in the Tondo project design is the assumption that the solution to the squatter problem lies in a policy based upon the provision of the elements of environmental security — appropriate locations, tenancies, and investment opportunities — rather than on the direct construction of houses.

The basic premise of the project is that progressive development (step-by-step upgrading) and self-help methods will enable low-income households to afford a level of housing in accordance with a variable income stream. These methods are cheaper by making labor available at a price below rates set by contractors. Further, a Materials Loan Program has been provided by the project for the purpose of assuring families of financial assistance to improve their houses on a self-help basis. The Materials Loan Program was envisioned as a support program to the rapid improvement of the quality of housing in the project area.

An integral part of the reblocking concept is the imperative to bring down the level of structural disturbance to the minimum. The need to

*Associate Professor and Director of Research and Publications Program, College of Public Administration, University of the Philippines.

preserve existing housing stock relates to the belief that any other procedure would mean subjecting residents to unnecessary financial, physical, and psychological stress. Minimizing the disturbance would free residents to carry on with their everyday activities with only minimal interruptions. To achieve this objective meant compromises between what level of standards could have been provided and what was in fact adopted. It also entailed devising and carrying out ingenious and innovative technical measures to circumvent the possibility of damaging structures, which to a large extent, has been responsible for the painstaking effort and carefully regulated pacing of reblocking.

Resettlement of families, due to the introduction of major infrastructure and the development of the adjacent International Port, is to be made in a 400-hectare site of reclaimed fishponds, Dagat-Dagatan, 3 kilometers away from the upgrading area. Each lot in the sites and services area is to be provided with minimum lot services (basic sanitary core) and party walls (roofs were later included). Resettled families were to bring in materials from their old structures and complete the units through the use of self-help labor. This would stimulate the progressive development of the community.

The reblocking procedure and the infrastructure components of the project represent the major physical contributions to the transformation of Tondo. They constitute potent stimuli that will provide conditions favorable to the emergence of secondary changes in the social and physical environment of the community, and the creation of corollary conditions that will sustain and encourage further improvements. The provision of basic services and security of tenure are presumed to be of extreme importance in the emergence of these changes.

The RAD evaluation team conducted a House Consolidation Study to test and validate these assumptions. This paper forms part of that study, as well as of a long-term study, to evaluate the impact of the project on the overall housing quality in Tondo.

More specifically, it attempted to:

(1) show in overall statistical and descriptive terms the extent of improvement in quantity and quality of housing;

(2) study the process of house consolidation relating to
   (a) methods of construction;
   (b) use of self-help vs. contracted labor; and
   (c) amounts spent for repairs and reconstruction and sources of financing.

(3) determine the factors that are contributory to the rate of consolidation;

(4) determine implications for strengthening/modifying housing policies that relate to: level of intervention, lot sizes, affordability, design of completed units, credit programs for financing house repairs and reconstruction.

To achieve the above objectives, several survey instruments were used for the study. They included the following:

(1) Panel study questionnaires were administered to a sample

of 100 respondent households. The first application was made in July 1978 before reblocking was conducted in the respondents' respective blocks to provide data on the initial housing situation of the households. The questionnaire was administered again after three months following movement of the structures to their assigned lots. To date, only 56 structures had moved to their assigned lots. The panel study questionnaire aimed to collect information on the various housing characteristics and housing condition of the sampled structures, repairs and improvements made on the structure, extent of dislocation, costs of repairs and improvements, and sources of financing.

(2) A housing valuation survey was also conducted in the latter part of 1978 and involved estimation of the value of the structure by five different methods: the owner's own appraisal; that of an architect under the employ of NHA; that of a real property tax expert; that of a housing contractor; and the assessment of five neighbors.

(3) Photos of each of the structures before and after movement were also taken to record the changes in the exterior of the house.

(4) Floor layouts of the structures before and after movement were sketched to record changes in the interior of the house and in the use of living space.

Quantitative and Qualitative Changes of Housing Attributes in Tondo

Changes in the Physical Size as a Result of Reblocking

Prior to reblocking, the range of lot size in Tondo was from 13.1 square meters to 400 square meters. The average lot size was 65.3 square meters. Reblocking has resulted in a more equitable distribution of lot sizes with the policy setting the maximum lot size at 96 square meters, and setting the objectives of parceling out an average of 48 square meters to the largest number of families possible. The reblocking procedure has succeeded in narrowing the range of lot sizes considerably and the current range is from 29.4 to 107.2 square meters (Table 1). This meant that some 47 percent of families (Table 2) had to sustain reductions in lot sizes to conform to the policy setting the maximum land area that a family may retain, and had the consequence of bringing down the average lot size to 57.6 square meters after the reblocking period. However, some 53 percent were assigned larger lots, as many families living in lots scarcely larger than postage stamps were assigned larger lots in which they could eventually expand their structures. Thus, for the sample being studied, which is a representative sample of the reblocked portion of the Tondo population, the equalization and decline in lot sizes was accomplished primarily by the reduction of some overly large lots, rather than a systematic decline in lots overall.

The other determinants of the quantity of dwelling unit which are interesting to examine are number of stories and average building area, which rose (despite the average de-

Table 1. Housing Characteristics in the Tondo Area, Before and After Reblocking

Variable	Description (Average)	Mean Before Reblocking for Affected Sample[a]	Mean After Reblocking for Affected Sample[a]
Lot	Average lot size in square meters	65.3 (Range:13.1-400) (55.9)	57.6 (Range:29.4-107.2)
Build	Average building area in square meters	40.2 (Range:10.4-97.9) (21.2)	54.0 (Range:11.6-88.4) (16.6)
Story	Number of floors	1.49 (.51)	1.66 (.48)
Age	Age of the structure in years	8.58 (4.25)	10.2 (4.45)
Cement	Proportion of dwellings with solid (cement or brick) walls	.31 (.47)	.56 (.50)
Finish	Proportion of dwellings with wall finish (e.g., paint)	.13 (.34)	.11 (.32)
SolidF	Proportion of dwellings with concrete foundations	.13 (.34)	.29 (.49)
Toilet	Proportion of dwellings with bucket-flushed or other water-sealed toilet	.44 (.50)	.66 (.48)
Water	Proportion of dwellings with sink (and water connection) installed	.20 (.40)	.26 (.44)
Rich	Proportion of dwellings in neighborhoods (super-blocks) with monthly average incomes above 1,000 pesos	.20 (.40)	.20 (.40)
Sink	Proportion of dwelling units with sink installed in kitchen	.53 (.50)	.53 (.50)
Bdrooms	Number of bedrooms	2.0 (1.2)	1.8 (1.2)
Floor	Floor is other than dirt	.80 (1.16)	.73 (1.31)
	Number of observations	56	56

[a]Standard deviations in parentheses.

Table 2. Proportions of Households According to Changes in Overall Housing Quality and Individual Quality Measures

Variables	Proportion of HH for whom Value of Variable After Reblocking < Value of Variable Before Reblocking	Proportion of HH for whom Value of Variable Before = Value of Variable After	Proportion of HH for whom Value of Variable After > Value of Variable Before
Lot	.47	—	.53
Build	.15	.11	.74
Story	.09	.66	.26
Cement	.04	.67	.29
Finish	.04	.95	.02
SolidF	.06	.73	.22
Toilet	.04	.71	.26
Water	.07	.80	.13
Floor	.18	.71	.11
Bedrooms	.31	.53	.16

cline in lot sizes) from 40.2 square meters to 54 square meters. The range narrowed somewhat, although the magnitudes are slight. According to Table 2, some 74 percent of all households in the sample increased the built-up area of their dwelling units.[1] Only 15 percent suffered a decline in the same variable, and this is probably due in great part to the need to sometimes destroy a portion of the structure in order to accommodate the average lot size restrictions or the addition of roadways, and footpaths. The number of stories increased slightly on average, as some 26 percent of households added another floor to their structure. It is apparent that a considerable portion of the added living space has been accommodated, not by any increase in land area, but in the addition of floors. One should, thus, not be surprised if density per square meter of land increases but that density per square meter of living area remains the same or even falls.

Changes in Quality as a Result of Reblocking

Reblocking does result in a certain amount of dislocation. Houses were moved to make way for roads or to conform to the planned plot layouts. The results show that these effects are more than offset by incentives created by the project to invest in housing, even within three months of movement. Not only is living space expanded, but the quality of materials used is also improved. It should be noted, of course, that many of the

[1]The estimate of causality between the extent of changes in quality and the reblocking is just a first-round approximation. Because all the "before" measurements were taken in one month, July 1978, and the "after" measurements are distributed over a 2 1/2 year period, some of the changes in quality may simply be a reflection of either normal upgrading or age deterioration. Also, to the extent that reblocking is anticipated, some households may either be building up their houses during the period before reblocking or some may be holding off for fear that reblocking would harm their structure anyway. The presumption of this report is that these influences balance out.

Table 3. Changes in the Average Percentage of Structures Built of Different Types of Materials, Before and After Reblocking

Building Materials	Before	After
Percentage Salvaged	27.2	14.8
Percentage Light	9.3	37.6
Percentage Strong	63.5	51.8

households have not finished their improvements.

Foremost of these improvements is the established trend towards the use of stronger and better quality materials. In 1978, the distribution of structures according to the type of housing materials used (Table 3) showed that most of the houses were built of strong materials, with a significant proportion of structures being built of salvaged materials (27.2 percent). Later investigation shows that one-third of the structures have improved in terms of quality of construction materials. Accounting for the largest proportion of the change are structures formerly built of a mixture of light and strong materials that are now constructed entirely of strong materials. While for most families the improvements are done gradually, those who have ready finances take the opportunity of reblocking to "make the jump," radically altering the composition of their former structures. This is exemplified by families formerly living in structures made of salvaged materials who have completely torn down their old residence and built structures of a mixture of light and strong materials. In addition, some 22.5 percent of structures formerly built out of salvaged materials have shifted to the use of light materials. While the "before" averages of the proportion of structure constructed of strong materials indicate a reduction in the average, this is not suggestive of a lower tendency to use stronger and more expensive materials. As previously noted, increases in the number of floors, as well as expansions of the building area, have occurred enlarging the base from which the proportions are computed. Thus, structures which before movement were found to be wholly constructed of strong materials, would only be partially constructed of strong materials after movement and after additional floor areas have been provided.

The tendency of shifting to stronger and new materials is highest in the case of changes of materials used for exterior walls. Exterior walls of ground floors are being replaced with concrete hollow blocks, as suggested by the 26 percentage-point increase in the number of structures using the materials. Some families who built a second floor are apparently gathering sufficient momentum and finances to support the construction of better-quality walls for the additional story built; of the number of structures that added a second story, less than 8 percent constructed with makeshift materials, a little less than half used functional but not-too-durable fiber boards, while a little more than a fifth used wood and hollow blocks. These findings are reinforced by the fact that the number of structures that originally had no form of founda-

tion has been reduced by half and the visible trend in the improvements is towards the use of solid concrete or wood and concrete foundations. The use of the former has increased by 16 percentage-points. The table indicates that the percentage of the dwelling which had dirt floors rose from 20 percent to 27 percent. However, this may be a reflection of the fact that the flooring is kept rough as a preparation for the installation of tiles and other similar floor finishes.

One of the areas where the largest changes are taking place is that of toilet and bathroom facilities. About 22 percent of structures which previously had no toilet facilities acquired and installed toilets, mostly bucket-flush units that could easily be converted to one with a water closet as soon as the Tondo water supply is operative. Bathing facilities also registered improvements but on a more moderate scale. Whereas showers were never a part of the bathroom fixtures before reblocking, one out of every ten structures would become available in the project area, improvements in the direction of increased toilet and bathroom facilities may be expected.

Clearly, if the description of improvements in the quality of housing is to be made complete, it would be necessary to describe not only the extent to which the materials with which the house is constructed are being replaced by stronger ones but also the extent to which repairs and constructions have improved the conditions (state of deterioration) of the structures. The various degrees of improvements made on the structures have resulted in the lessening of the extent of deterioration not only of the roofs but also of the other parts of the structure as well. Foremost of these is the extent of abatement of the degree of deterioration that foundation and posts faced. Before improvements were made, holes and open cracks were found over large areas of 15 percent of the structures (Table 4). With improvements, the proportion of structures showing holes, and open cracks on foundations and costs decreased to 6 percent. Stairs and steps have likewise received considerable attention. Very substantial wear on steps were visible in 11 percent of the structures before movement which proportion has been reduced considerably after movement.

Present structures show less wear on floors because they are newly-constructed. An improvement in the proportion of structures that showed various degrees of bulging or sagging of walls may be observed with the decrease of this proportion by 21.5 percentage-points for inside walls and 9 percentage-points for outside walls. Some 20 percent of the structures with damaged window panes had been repaired. At present about 11 percent of structures have broken windows compared to only 16 percent before reblocking. Likewise, changes in door materials have reduced the proportion of structures with traces of wear to 55 percent as compared to 42.5 percent in the past.

In sum, there are fewer structures now that make use of salvaged materials; and those that do, appear to continue to make use of poor-quality items only for sections of the structure that have yet to be completed. Otherwise, the overwhelming tendency is to replace old and dilapidated materials with newer and stronger ones. The "in-progress" state of many houses is further made evident

Table 4. Proportion of Dwellings with Very Substantial Depreciation

Indicators	Before	Immediately After Movement
Wear on Floors	.20	.11
Wear on Steps	.11	.02
Holes on Ceiling	.18	.05
Holes on Inside Walls	.36	.15
Broken Windows	.16	.11
Wear on Door Frames	.15	.13
Holes on Outside Walls	.27	.18
Holes on Roofs	.27	.09
Holes on Foundation	.15	.06

by the prevalence of rough and unfinished cement ground floors; a strong indication that tiles and other appropriate materials would be installed as soon as finances permit. The use of concrete hollow blocks for the exterior walls of the ground floor is widespread, as is the practice of installing stronger interior walls. The gradual but steady process of house consolidation is made more obvious by the fact that while ground floors are solidly built, the upper floor is constructed of lighter — yet new — materials that allow families to have the extra living space through less expensive but equally functional means. With the drainage problem now eliminated, families are no longer hesitant to construct houses set firmly on solid posts and foundations. The proportion of houses on stilts that dotted the site in the past has been reduced by about half. Toilets, as well as bathing units, have been installed to take full advantage of the basic services introduced by the project, and everywhere the overall impression is that of slow but substantial construction activity.

The Causes of the Change: Reblocking and Income

It is apparent that some of the changes documented in the preceding section may have been the result of ordinary maintenance and upgrading and not because of the reblocking effort. However, a detailed study of the impact of the project on the physical environment of Tondo singles out the pivotal role of provision of infrastructure and of security of tenure in the large scale improvements being carried out by residents in the area.[2] Compared to families in other depressed communities of similar conditions — but where no intervention such as upgrading is taking place — families in Tondo are not only undertaking housing improvements at a much faster rate and of greater magnitude, but are doing so at a pace that closely follows the rate of reblocking.

The study closely examined the degree of improvements being carried out in areas already reblocked, in areas that are in the process of reblocking, and in those where reblocking is yet to commence. Results indicate that while Tondo's families are undertaking more improvements than families of comparable situation else-

[2] Mila A. Reforma, "A Study of the Impact of the Project on the Physical Environment of Tondo National Housing Authority," Research and Analysis Division, 1979, Mimeo.

where, the greatest changes are occurring in areas where reblocking is complete, and that the magnitude of improvements decreases in direct proportion to the degree of reblocking yet to be done. Put simply, most housing improvements are observed to be taking place in completely reblocked areas, and the least in unreblocked areas in the site. Those still in the process of reblocking exhibit a degree of change midway between the two.

Having established the relationship of housing improvements to the elements provided by the project and the timing at which these improvements take place, further investigation of other factors that may relate directly to these changes is an appropriate step towards further isolation of corollary elements that predispose families to invest in better-quality housing. One line of inquiry would be to investigate the role of income in determining the pace and rate of improvement. Certainly, in absolute terms, if housing is one of the normal goods and incomes rise over time, then housing consumption would be expected to rise over all income groups. In relative terms, if housing demand is relatively income inelastic (as evidenced by some recent studies) we would expect, as incomes rise throughout the population that the percentage change in housing demand would be greater for low-income than high-income people. Because of the implicit subsidies involved, the project can be viewed as a change in wealth (as land is transferred at below economic costs).

The relationship between income and the pace of improvement is summarized in Table 5. The relationship (which must be interpreted as tentative because of the small sample sizes involved) depends very much on which housing attribute is considered. The size variables seem to have no discernible trend when compared with income. The percentage increase in building area seems to be highest for the sample belonging to the middle income groups. In general, it is very difficult to discern any solid relationship between income and the measures of housing attributes in Table 5.

Table 6 summarizes the proportion of households in each income quartile for whom the value of a variable representing a particular attribute is less after reblocking than before reblocking. The number in parenthesis is the proportion of households for whom the value of the same variable is greater after reblocking than before reblocking. The strongest result is the presence of a floor (i.e., other than dirt). Half of the households in the lowest quartile went to dirtfloor after reblocking as compared to only 6 percent of the highest quartile. In general, however, there are no systematic relationships to be found.

A preliminary conclusion to be drawn is that there is no systematic relationship between income and the extent of improvement in any specific attribute of housing. The conclusion is preliminary because we have not taken into account other household characteristics such as size and housing characteristics such as age. This awaits multivariate analysis at a later stage. There are, however, some interesting conclusions to be drawn regarding the type of improvement carried out by various income groups. For all income groups the most important housing attribute which most

Table 5. Relationship Between Income and Pace of Improvement

HHs in the sample are in the following quartiles of the 1978 Tondo Income Distribution	Average Values of Variables Before and After Reblocking for Different Income Groups										Average Proportion of the Population with the Following Housing Characteristics									
	LOT1 (in sq.m.)	LOT2	BUILD1 & 2 (in sq.m.)		STORY1 & 2 (no. of floor)		BEDROOMS1 & 2 (no. of bedrooms)		TOILET1 & 2		WATER1 & 2		FLOOR1 & 2		CEMENT1 & 2		FINISH1 & 2		SOLIDF1 &	
0 – 25% ile (6 households)	58.3 (% = -25%)	43.7	29.3 (5%)	30.8	1.3 (51.5%)	2.0	.83	.67	.33 (100%)	.67	.00	.17	.67	.33	.00	.50	0	.00	.00	.00
26 – 50% ile (14)	45.4 (12.5%)	51.1	33.6 (49%)	50.2	1.4 (10%)	1.5	1.6	1.3	.43 (16.3%)	.50	.21	.14	.76	.71	.29	.43	.00	.00	.21	.43
51 – 75% ile (18)	70.5 (-17.2%)	58.4	35.2 (59%)	56.0	1.6 (4%)	1.7	2.0	2.2	.28 (117%)	.61	.11	.33	.72	.72	.16	.61	.11	.11	.00	.28
76 – 100% ile (17)	78.7 (-15.2%)	66.7	56.0 (12.9%)	63.2	1.5 (8%)	1.6	2.7	2.2.	.65 (27.7%)	.82	.35	.29	.94	.88	.59	.65	.29	.24	.24	.29

Table 6. Proportion of Households in Each Quartile for Whose Value of Variable After < Value of Variable Before Reblocking (Proportion of Households in Each Quartile for whose Value of Variable After> Value of Variable Before Reblocking)

Income Quartile	LOT	BUILD	STORY	BEDROOMS	TOILET	WATER	FLOOR	CEMENT	FINISH	SOLIDF
0-25%	.67	.33	.00	.17	.00	.00	.50	.00	.00	.00
	(.33)	(.67)	(.67)	(.17)	(.33)	(.17)	(.17)	(.50)	(.00)	(.00)
26-50%	.50	.14	.07	.43	.07	.14	.21	.07	.00	.07
	(.50)	(.86)	(.21)	(.07)	(.14)	(.07)	(.14)	(.21)	(.00)	(.29)
51-75%	.33	.00	.17	.22	.00	.00	.17	.00	.06	.00
	(.61)	(.94)	(.22)	(.39)	(.33)	(.22)	(.17)	(.44)	(.06)	(.28)
76-100%	.59	.24	.06	.35	.06	.12	.06	.06	.06	.12
	(.12)	(.47)	(.18)	(.00)	(.24)	(.06)	(.00)	(.12)	(.00)	(.18)

households had improved was building area. The attribute which declined for most households was lot area, followed by the presence of a dirtfloor for the lowest quartile and the number of bedrooms for all the other quartile. This probably reflect the unfinished nature of many of the improvements, although building areas improved for many, the partitions into rooms were yet to be determined.

Methods of House Construction

Construction and repairs of the majority of structures in Tondo are carried out in incremental stages. Improvements are generally done over a period of time, with the old and poor quality materials being gradually replaced by better quality materials. All reusable materials are saved and go into the rebuilt structure. Families generally start modestly, building with materials saved from their former houses, but slowly extending their structures as they manage to build up their finances over a period of time.

For those whose structures are adversely affected by the introduction of infrastructure, only a rudimentary form of shelter is often constructed immediately after the period of movement owing to the critical need for a functional structure. Many leave these rudimentary structures as is until such a time when an entirely new structure can be built.

For most families, however, reblocking provides the conditions to improve on their structure regardless of whether or not their structures had incurred damages as a result of the realignment procedure, and families whose structures were left untouched by the procedures are as likely to carry out improvements by those who had to bear some inconveniences on their part.

The study shows that the amount spent for repairs and improvement average about ₱6,092 per structure. The bulk of the expenditures is for construction materials which averages ₱5,318 or 87 percent of the total cost of construction. In comparison, the amounts spent for labor are nominal, which averages about ₱774.00 or 13 percent of construction expenses. If we consider that some unpaid manhours of labor were put into the construction, the value of repair and improvements would however be higher. Considering the average amount spent for man-day of paid labor (calculated at ₱25/day) and the total number of unpaid man-days employed, the total value of the improvements would be about ₱6,199 per structure, with imputed value of unpaid labor averaging 2 percent of the total value or an average of ₱107 per structure.

Extent of the Use of Self-Help Labor

The extent of the use of self-help labor may be gleaned from the proportions of structures which were constructed and repaired using only hired labor, (32%) using only unpaid labor (38%), and those that combined hired and unpaid labor (30%). The proportion using unpaid labor is somewhat higher than the proportion using paid labor although, in terms of number of man-days hired, the ratio of paid-to-unpaid man-days labor is 1.5.1.

Only to a limited extent may use of unpaid labor be seen as a function of the amount and type of work

Table 7. Amount Spent for Repairs and Improvement

Amount	Paid Labor		Unpaid Labor		Materials		Total	
	No.	%	No.	%	No.	%	No.	%
None	21	37.5	19	33.9	8	14.3	5	8.9
₱100 & less	5	8.9	21	37.5	6	10.7	5	8.9
101 — 200	4	7.1	10	17.9			2	3.6
201 — 300	4	7.1			1	1.8		
301 — 400			4	7.1	3	5.3	4	7.1
401 — 500	1	1.8			1	1.8	1	1.8
501 — 1000	6	10.7	1	1.8	7	12.5	9	16.0
1001 — 1500	4	7.1	1	1.8	1	1.8	1	1.8
1501 — 2000	5	8.9			2	3.6		
2001 — 2500	1	1.8					2	3.6
2501 — 3000	1	1.8			1	1.8	1	1.8
3001 — 3500	2	3.6			1	1.8	1	1.8
3501 — 4000	1	1.8			2	3.6	1	1.8
4001 — 4500					2	3.6	1	1.8
4501 — 5000					1	1.8	1	1.8
5001 — 10000	1	1.8			8	14.3	7	12.5
10001 — 11000					1	1.8	1	1.8
11001 — 12000					2	3.6	2	3.6
12001 — 13000					2	3.6	2	3.6
13001 — 14000					1	1.8		
14001 — 15000					1	1.8	2	3.6
15001 — 20000					2	3.6	4	7.1
20001 — 25000					2	3.6	3	5.3
more than 25000					1	1.8	1	1.8
Total	56	100.0	56	100.0	56	100.0	56	100.0
Average	₱774.00		₱107.00		₱5,318		₱6,199.00	

involved. There were few structures that undertook only minor repairs, such as repair of areas affected by reblocking, repair of some portion of the structure needing repair like roof, extension walls, toilet facilities, windows, and the provision of interior wall partitioning. Of these, only a small proportion used hired labor.

But there were cases of non-use of paid labor where major construction activities like installation of toilet facilities, construction of additional floors, expansion of floor space, and changes in major parts of the structure like roof, foundation, floor, and posts. Some built entirely new structures on purely unpaid labor basis. For the most part, major constructions were accompanied by minor repairs and in most of these instances, hired labor was combined with unpaid labor.

There is, therefore, not enough information for determining particular activities requiring the most contract work. Such information may be invaluable for determining the kind of core unit or technical assistance required by project beneficiaries for house reconstruction and repairs.

Likewise, the attempt to relate the amounts spent for paid and unpaid labor to income yielded low correlation coefficients so that, at the

present, it cannot be established that the use of self-help labor is a function of income.

Sources of Materials

An examination of the sources of construction materials confirms the preference of families to invest in newer, stronger, and better quality materials. A little more than 60 percent of all materials used were purchased from regular hardwares and construction shop supplies. Despite the number of peculiar second hand stores in the project area (which sell materials at 10-25 percent cheaper price) only 9.3 percent of households bought from these stores. In addition to these, only 38 percent of households who purchased materials from these stores bought substantial quantities of materials for their construction needs.

The non-purchase of materials from junk shops further indicates the desire to veer away from the use of salvaged materials for repairs and construction.

A significant finding, too, is that only 17.9 percent of households availed themselves of the Housing Materials Loan Program (HMLP) as a source of construction materials. Materials procured by way of the HMLP account for less than 8 percent of total cost of materials used for construction. Effectiveness of the HMLP program can further be judged in terms of the extent to which families availing themselves of the loan relied on HMLP for their construction needs. In 8 out of every 10 cases of families availing themselves of the program, the amounts availed of would constitute about 50 percent or less of their total material requirements.

A previous evaluation of the HMLP indicated that two factors account for the low effectiveness level of the HMLP: First, the maximum loanable amounts provided are not large enough to cover for the total cost of materials needed; and second, the types of materials considered most needed by the families are not currently provided by the Program.

The present study shows that at least 45 percent of those who purchased materials, purchased amounts more than the maximum loanable amount of P3,500 provided by the HMLP.

Table 8. Sources of Materials

Percentage	H. M. L. P.		Construction Shops		Second Hand Stores		Junk Shops		Others	
	No.	%	No.	%	No.	%	No.	%	No.	%
0 %	46	82.1	12	21.4	43	76.8	56	100.0	53	94.6
1 — 25%	5	8.9	4	7.1	8	14.3				
26 — 50%	3	5.4	3	5.4						
51 — 75%	1	1.8	2	3.6	1	1.8				
76 — 100%	1	1.8	35	62.5	4	7.1			3	5.4
Total	56	100.0	56	100.0	56	100.0	56	100.0	56	100.0
Average	5.9		60.2		93		0.0		4.7	

Table 9. Sources of Financing

Source. of Financing	No.	%
Savings		
0 %	14	25.0
1 — 20%	5	8.9
21 — 40%	3	5.4
41 — 60%	1	1.8
61 — 80%	1	1.8
81 — 100%	31	55.3
Not applicable	1	1.8
Total	56	100.0
Average	54.8%	
Gifts		
0 %	51	91.0
1 — 20%	1	1.8
21 — 40%		
41 — 60%	1	1.8
61 — 80%		
81 — 100%	3	5.4
Total	56	100.0
Average	5.9%	
HMLP		
0 %	45	80.4
1 — 20%	5	8.9
21 — 40%	4	7.1
41 — 60%		
61 — 80%	1	1.8
81 — 100%	1	1.8
Total	56	100.0
Average	6.0%	
Loans from other Institutions		
0 %	49	87.5
1 — 20%	1	1.8
21 — 40%	1	1.8
41 — 60%		
61 — 80%	1	1 8
81 — 100%	1	1.8
Total	56	100.0
Average	8.5%	
Loans from relatives and friends		
0 %	49	87.5
1 — 20%	3	5.4
21 — 40%	1	1.8
41 — 60%	1	1.8
61 — 80%	1	1.8
81 — 100%	1	1.8
Total	56	100.0
Average	5.0%	
Loans from money lenders		
0 %	55	98.2
1 — 20%		
21 — 40%	1	1.8
41 — 60%		
61 — 80%		
81 — 100%		
Total	56	100.0
Average	0.7%	

The study also supports the HMLP finding that items of materials like cement, hollow blocks, and steel bars were among the types of materials most required by the households and that the non-inclusion of these in the materials loan package account for the low level of availment.

Sources of Financing

Although families use a variety of financial sources, by far the largest contribution to the funds for house reconstruction is drawn from the families' own savings. Savings constitute close to 50 percent of all sources of financing. For 55 percent of the households, funds generated from savings were the only source of finance. It is also significant to note that 25 percent of the households in the sample did not indicate savings as a source of finance.

Gifts from relatives and friends constitute 15 percent of all sources of finance and were availed of by only 12% of the households. The amounts vary from ₱320 to ₱15,000 but for at least 7% of the sample these were large enough to provide for 41-100% of their needs.

As has been previously pointed out, only 20% of households draw from HMLP as a source of funds. Amounts derived were very much limited, compared to amount of loans availed of from other institution. While only 12.5% of households availed themselves of loans from other institutions, the amounts were fairly substantial — ₱1,600 to ₱20,000. This account for the greater proportion (15%) of the total amounts spent for repair and improvement being derived from this source.

Likewise, loans from relatives and friends were taken out by only 12.5% of households, about half of whom borrowed large amounts enough to cover for more than 40% of the needed finances.

Because of the relatively larger amounts required by repairs and improvement, loans from private money lenders were hardly availed of. Only one out of the 56 households availed himself of this source because of the large amounts required, the exorbitantly high interest rates and the relatively shorter repayment period allowed.

Summary and Conclusions

Because the concept is new, upgrading as an alternative approach to providing the ever-increasing numbers of squatter families with acceptable housing has been in many cases applied only tentatively and with a great deal of study. The impact of urban redevelopment projects such as these are of extremely valuable sources of future policies and suggestions as to the administrative and financial servicing that similar projects would entail.

A number of independent studies that are forming the comprehensive evaluation of the Tondo project has yielded separate yet corroborative evidence supporting the validity of upgrading as an approach to the problems of urban housing. Assessed from the general viewpoints of adequacy, appropriateness, efficiency, and effectiveness, an increasing volume of data affirm the assumptions on which the approach is based.

By more than anything else, a slum

or squatter area stands apart from the rest of the city by its physical qualities, the description of which summarizes and constitutes the lowest possible standards of housing and environmental quality. This isolation, based on the discrepancy between the physical and environmental attributes of the squatter area and the conventional residential areas of the city is rapidly giving way as upgrading proceeds in Tondo. The transformation of Tondo is oftentimes described as dramatic. The drama results not from the course of events that have completely altered the socio-physical characteristics of the community, but from the culmination of an experiment that proves that the squatter problem can be resolved with a minimum of governmental expense. Tondo as the pilot site is affirming the assumption that given security of tenure, basic services, and some financial and technical assistance, families are able to provide themselves housing, the quality of which are surpassing even the most optimistic predictions.

The sheer magnitude of the tasks at hand and the relatively novel approaches used, however, have raised a few issues that require examination for purposes of applying the same concepts in other slum and squatter settlements in the country. Foremost of these issues include the need to examine the appropriateness of (1) lot sizes being awarded; (2) emphasis being given to the objective of minimum dislocation of structures; (3) level of services being provided; and (4) The Housing Materials Loan Program.

Larger Lot Sizes vs. Smaller Lot Sizes

One of the major consequences of reblocking is, alternatively, the reduction in lot size, an increase in lot size, or the retention of the lot size originally occupied. How reblocking affects the lot size of a particular family comes as a result of a number of factors, such as the block plan adopted by the neighborhood, the right-of-way of roads and utilities agreed upon, the number of pedestrian access ways desired by residents and so on.

An examination of how families who had their lot sizes altered as a result of reblocking reveals interesting results that point out the need to restudy the awarding of large lots to families. Families that suffered reductions in lot sizes compensated for the loss by building on all available areas. Also a common compensatory measure is the construction of a second floor which in effect makes available to the family more habitable space in their present quarters than what they formerly had in their larger lots.

Reductions in lot sizes do not at all mean a reduction in habitable space, as the study shows. Most of the reductions were on open spaces — gardens and yards — that did not cause the families to put up with a house reduced in area. Because the "sliced" portions of the lot spared the structures themselves, little or no inconvenience is suffered by these families. Conversely not all families who were awarded larger lots used the additional area for living space, leaving that portion open for use as gardens or service areas. This tendency is particularly evident among those who had very large increases in lot sizes, with the net effect that substantial areas of land in any block that could have been used as additional plots for more families lie unused.

The consideration, of course, is that the particular block design may preclude the idea of generating more lots from the available land, as this may require substantial re-alignment of structures. But where possible, the awarding of very large lots should be minimized in favor of generating more lots within the block. This would result in less families being relocated, and would encourage more efficient use of land. Given the present cost of land, and the rate at which this cost rises, the practice of awarding very large lots only to have these lots under-utilized is neither efficient nor economic.

Minimum Dislocation vs. Cost Effectiveness

It is inevitable that some structures are adversely affected by reblocking, as the introduction of infrastructure and utilities is carried out. These structures are damaged in various degrees depending on their spatial relationship to the right-of-way of the service line or road, and require appropriate repairs. Oftentimes the family take the opportunity to improve the structure substantially, if not construct an entirely new house. This results in a large number of greatly-improved houses in Tondo.

However, other families who do not suffer any dislocation at all also invest large amounts into housing improvements as well. Available data suggest that regardless of the extent of dislocation, families tend to invest finances into better-quality housing; with the exception of those whose structures suffered the least damage but built completely new houses, investing the largest amounts.

On one hand, the fact that the extent of dislocation has nothing at all to do with the amounts invested into housing improvements supports the contention that given sufficient stimulation (secure tenure, basic services, technical assistance), families would construct better-quality structures on their own. On the other hand, this also implies that perhaps the laudable objective of minimum dislocation of structures may not be a valid consideration.

The principle of minimum dislocation has been adopted principally on the grounds that the residents of Tondo, because of extremely low incomes, are in no position to absorb the financial stresses that would result from large-scale structural disruption. As a consequence of the adherence to presumption, many technical, administrative, and financial innovations have been drawn up, and the costs in terms of man-hours and effort that went into the preservations of this stand is incalculable.

However, the study indicates that whether or not families suffer dislocation, these families themselves tear down their houses to construct better structures, an observation that runs counter to the previously-held assumption. This may mean that greater leeway can now be given to project planners and administrators to explore less demanding alternatives to carry out the project. The minimum dislocation principle, while truly humanitarian, has also been a serious constraint to project execution, and, in more ways than one, contributes to the operational delays.

The results of the study then indicate that a re-examination of this

objective be made, and that exploratory measures be taken to assess the extent to which it may be modified for the project's benefit.

On-Plot Developments

Similarly, previous assumptions about families moving into the core houses in the sites-and-services areas of the project need to be re-examined. Foremost of these is the assumption that families will use materials taken from their former houses in completing the core units provided them. What in fact happens is that the core units are being completed with entirely new materials purchased by the family, and that the components of the core unit are torn down and altered drastically to suit the families' preferences. This proves once again, as has been proven in the past, that provision of complete or near-complete shelters is an approach that does not suit the Filipino family's preferences. The configuration and layout of current structures bear little or no relation to that of the basic configuration of the initial core units, as variations in the preferred use of living space are expressed in new and innovating ways.

Since most families do not make use of all the on-plot components, which in being replaced are merely wasted, the extent of on-plot development should not be uniformly applied. Rather, the level of servicing should be optional and would not only mean cost savings for the project, but would also permit providing more assistance to those who cannot build or provide facilities on their own.

A case in point is toilet facilities, which is provided in each core unit. More often than not, the families who occupy the units replace most, if not all, of the fixtures provided. Were it left to the families' options to be provided with the toilet fixtures, substantial savings could have been made.

The Housing Materials Loan Program

The study of the Housing Materials Loan Program (HMLP) has brought to the surface two major findings that support the assumption that Tondo residents are building stronger and better-quality housing; large sums of money are being spent for house consolidation; and, a high percentage of structures is built of strong materials.

These findings also suggest that the program should be altered to be more responsive to the needs of the residents. The hardboard and fiberboard provided by the program are used by recipients only temporarily, who then replace the materials issued to them with wood and panel, a stronger materials.In addition, more and more structures are being built of concrete and hollow blocks, and there is an increasing demand that these construction materials, as well as other materials (e.g., steel bars, gravel and sand, etc.) be included in the inventory of materials loaned out to residents.

The loan ceiling of ₱3,500 is also considered too low by residents who intend to build better structures. This amount is too small compared to the actual amount spent for house reconstruction, and increasing it to more realistic levels is a recommendation that should be considered in the light of the service and assistance function of the program.