Transitional Lifestyle and Energy Consumption Changes in the Relocation of Slum Dwellers of Tacloban City, Philippines

Eric Casimero OLIVA[1,2], Tetsu KUBOTA[3]

[1] Masters Student, Graduate School for International Developlment and Cooperation, Hiroshima University
(1-5-1 Kagamiyama, Higashi-Hiroshima, 739-8529 Hiroshima, Japan)
E-mail:ecoliva72@yahoo.com
[2] Senior Angineer A, National Housing Authority, Tacloban City
(NHA Building, Calanipawan Road, Sagkahan, Tacloban City, Philippines)
[3] Assoc. Professor, Graduate School for International Developlment and Cooperation, Hiroshima University
(1-5-1 Kagamiyama, Higashi-Hiroshima, 739-8529 Hiroshima, Japan)
E-mail:tetsu@hiroshima-u.ac.jp

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1. INTRODUCTION

Slum population in the world is rapidly increasing alongside with the increasing global energy consumption and GHG emission which are believed to be causing the global warming and climate change. It is therefore imperative that actions towards the resolution og global slums and poverty issues should as well put into consideration measures against further increases of energy consumption and GHG emissions.

In the Philippines, where slum prevalence is at 44%[1)], the government implements the Resettlement Program as a strategy in averting poverty and homelessness[2)]. The national government through the National Housing Authority (NHA) provides a one time grant of assistance to Local Government Units in developing a resettlement project, who in turn manages and disposes of properties to local beneficiaries through soft loans or other modes of delivery deemed appropriate. The LGU has to recover the investment and use the fund as seed capital for their future housing projects. As provided under the Philippine law on housing, Republic Act 7279 – otherwise known as Urban Development and Housing Act of 1992[3)], relocation or resettlement for slum or squatter settlements entails the provision of decent yet affordable house and lot (or lot only) together with basic services and employment opportunities to significantly uplift the conditions of the underprivileged beneficiaries. Such development could make not only improvement in family income but likewise changes in the behavior and lifestyle of the beneficiaries[4)], thereby creating significant changes on the way they usually do things and perhaps the way they consume energy[5)].

Past and present studies on slums and related services such as housing are mainly focused on affordability, financial and structural policies which intend to come up with solutions how to reach out more beneficiaries. Studies relating to assessment of impact of the present housing progam to energy consumption, however, are scarce if not none. It is therefore the intent of this paper to shed light on the impact of slum relocation towards the energy consumption of its beneficiaries considering the lifestyle change brought about by such relocation. Specific objectives of this study are as follows:

(1) Determine and compare the sources and specific uses of energy between households living in the existing slum settlement (Group 1) and relocation or resettlement site (Group 2);

(2) Quantify and compare intensities of household energy consumption between the two groups: and

(3) Analyze and compare major factors including lifestyle characteristics that influence energy consumption between the two groups.

2. CASE STUDY AREA

The discussion in this paper is based on a study conducted in Tacloban City, Philippines. The City is located on the northeast part of Leyte Island, the second biggest among islands comprising the Eastern Visayas Region (or Region 8) of the Philippine Archipelago. It lays 11 degrees 14’ 38.19” North latitude and 125 degrees 0’ 18.24” East longitude,

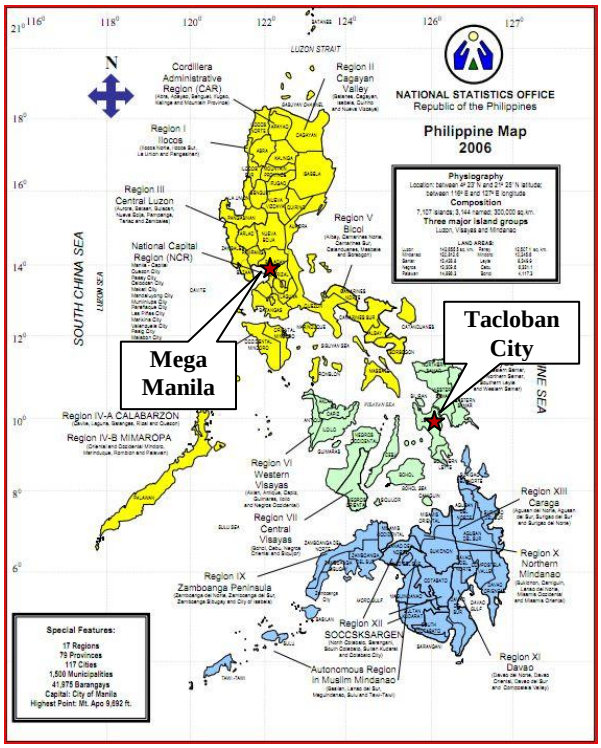


Fig. 1 Map fo the Philippines showing relative locations of Manila and Tacloban City

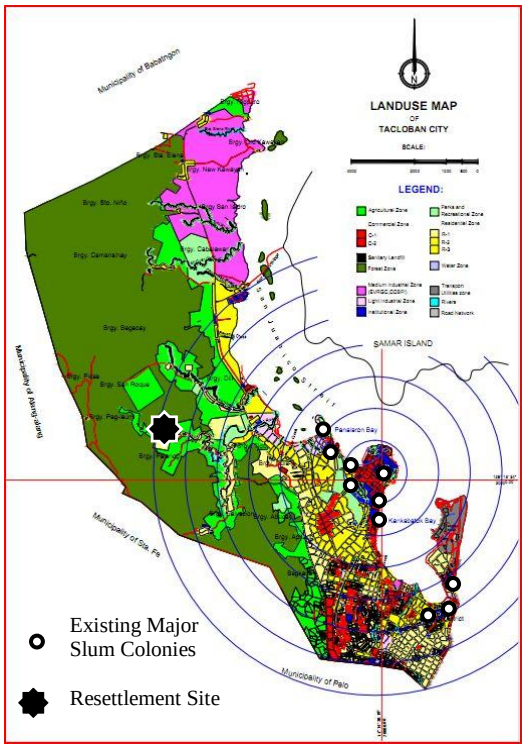


Fig. 2 Land Use map of Tacloban City showing the locations of Existing slum colonies and the Resettlement Site of the City

situated about 580 kilometers southwest of Manila, the capital of the Philippines (Fig. 1).

Tacloban City has grown to be the premier city of Eastern Visayas (Region 8), the gateway of the region and the center of commerce, trade and industry, education, and communication and technology. By virtue of Presidential Proclamation No. 1637, the city was converted from being a component city of Leyte Province into a "highly urbanized independent city" in 2008. Tacloban has a total population of 217,199 as of 2007 census having an annual growth rate of 2.78%, that is 36% higher than that of the national growth rate which is 2.4%[6]. Urbanization is at 87% indicating that majority of its inhabitants live in the city urban districts[7]. Slum dwellers consist around 10,000 households or about one-third of the urban inhabitants based on 2010 estimate of the Presidential Commission for the Urban Poor (PCUP)[8]. In 2003, a resettlement housing project named "Tacloban Resettlement Project" was established in Barangay Palanog (Fig. 2), some 8 kilometers northwest of Tacloban City proper to serve as a relocation site for the evicted slums dwellers occupying the city's grounds near the City Hall. Tacloban City was selected as the subject area considering the following reasons:

- Being the regional capital of Eastern Visayas region, it can represent all the cities and capital towns of the region in terms of population and urban development. Resettlement program in the country is implemented almost similarly throughout the nation, thus, the case in Tacloban City may as well represent other cities of the country especially those outside of mega Manila;
- As the city is gearing up for more economic prospects and investments as a newly categorized "Highly Urbanized City", it is expected that migration rate will turn from out-migration to in-migration[7];
- Location and condition of resettlement project of Tacloban City follows the overall trend of resettlement development in the country, that is, moving farther from the original location of the beneficiaries or the city center where they come from (see Fig. 3).

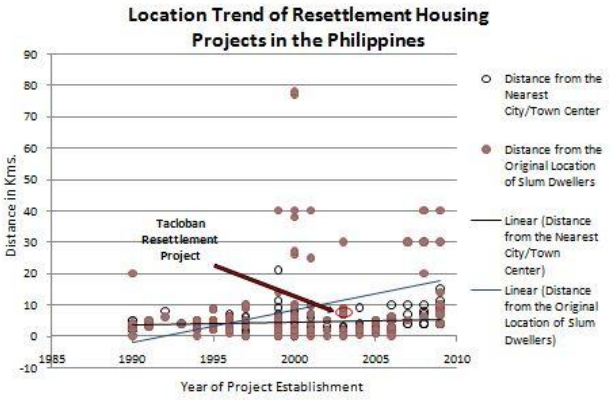


Fig. 3 Locational trend of Resettlement Housing Project development in the Philippines

Except for mega Manila and few other major metropilitan cities of the Philippines, where most of the resettlement projects are already situated outside of their political boundaries, cities in other parts of the country confine their resettlement projects within their own political boundaries. However, since prices of land within the urban districts including their immediate vicinities, specially for highly urbanized cities, are soaring high almost annually, LGUs resort to situating resettlement sites in the farther end of the cities, hence, the trend.

3. METHODOLOGY

To ensure comparability, 2 distinct groups of dwellers were interviewed using prepared survey questionnaires designed to capture information concerning the following key categories:

- Demography and livelihood
- Housing Condition
- Routine Activity Schedule
- Energy consumption

The first group consisted of sample households from the existing slum colonies (Group 1) of Tacloban City and the second group consisted of former slum dwellers now relocated at the Tacloban Resettlement Project (Group 2) in Barangay Palanog, Tacloban City (see Fig. 2). Sample size for Group 1 was determined by stratifying the existing slum dwellers of the city by major colonies based on the 2010 estimate of the PCUP and by employing appropriate sample size determination formulae. A total sample size of 371 households was determined and actual sample households were determined on site through systematic random sampling at 12 houses interval. On the other hand, considering the smaller population size of Group 2 (relocated households) which is just 287 households as reported by the City Social Welfare Development Office – the office in charge in the appropriation of plots to the beneficiaries – as of the survey date, a standard sample size of 100 households was secured. Similarly, actual sample households were determined through systematic random sampling at 2 houses interval. At the end of the survey, actual samples collected were 285 for Group 1 and 107 for Group 2 with a response rate of 67%.

4. RESULT AND DISCUSSION

(1) Profile of Sample Households

Sample households characteristics in both groups 1 and 2 can be briefly described in Figs. 4 through 6.

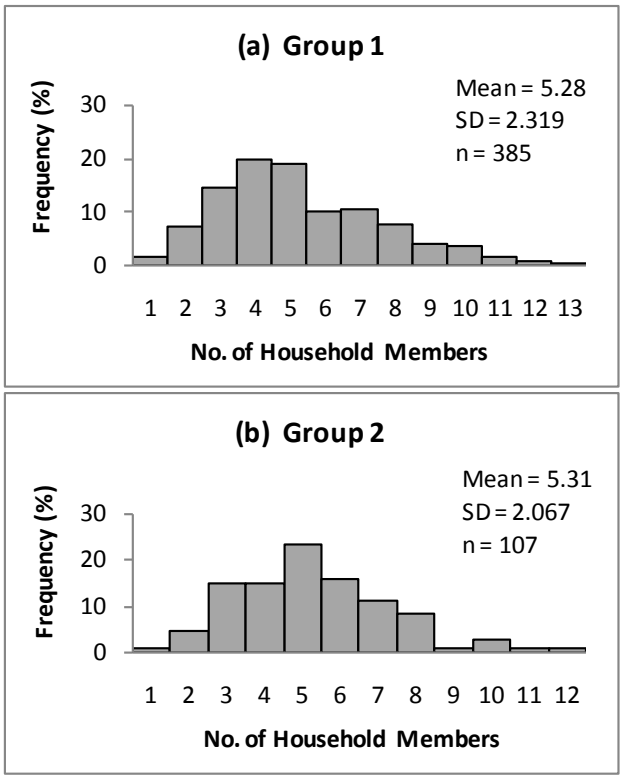


Fig. 4 Number of households members in Groups 1 and 2

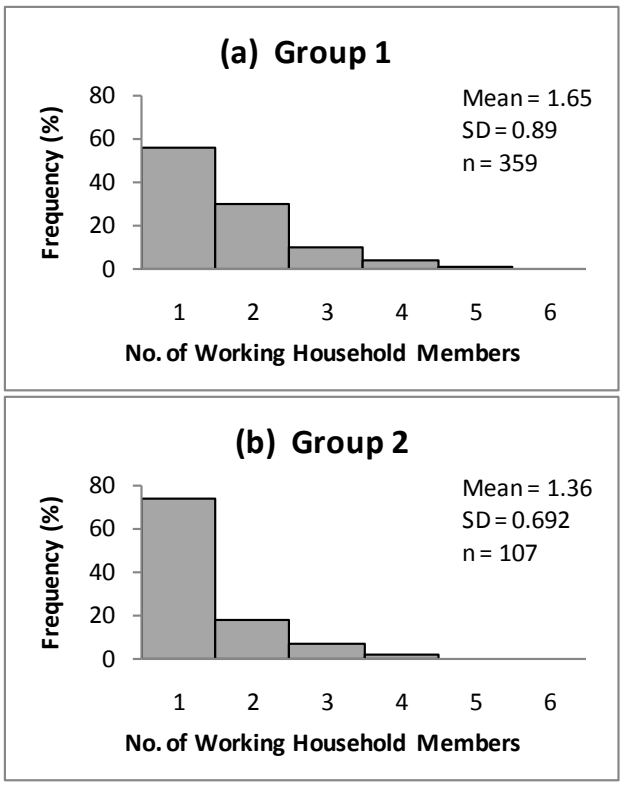


Fig. 5 Number of working members of the household

Households in both Groups 1 and 2 have on the average 5 members (Fig. 4) in the family. Relatively,

more household members in Group 1 (1.65) compared to Group 2 (1.36) are able to find work or any other source of income (Fig. 5), which is suggestive, though not conclusive, of a slightly higher household income of the former vis-à-vis the latter as indicated in Fig. 6 below:

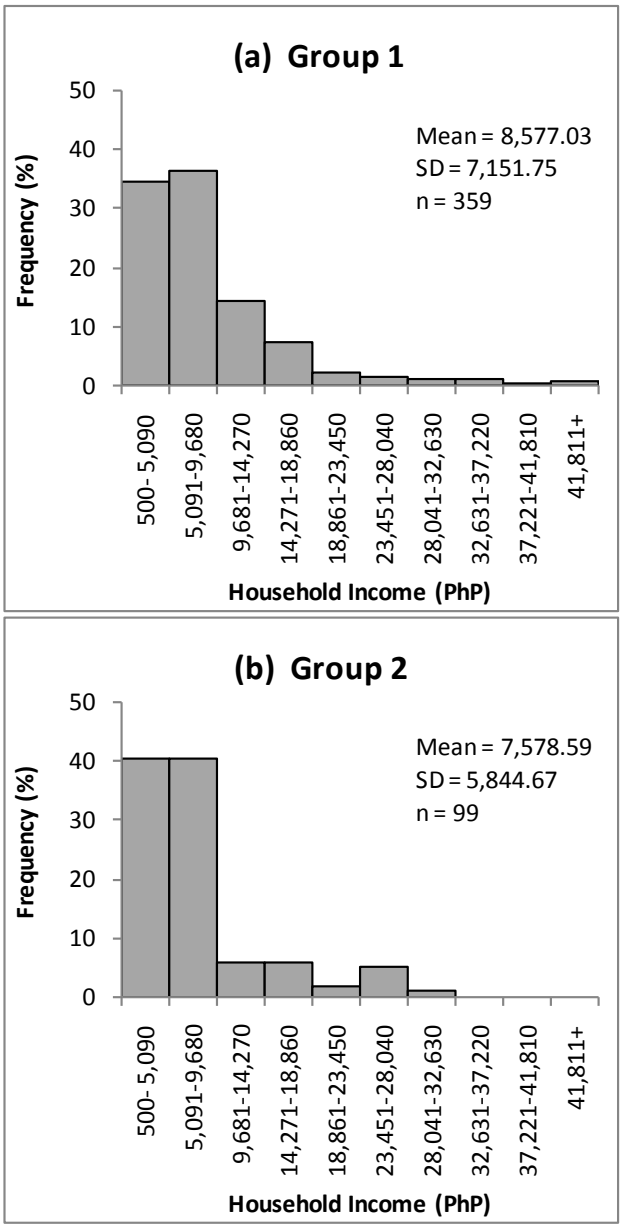


Fig. 6 Household Incomes of Groups 1 and 2 in Philippine Peso

This result contradicts the initial assumption that household income in Group 2 must be higher than in Group 1 considering that they are beneficiaries of the government housing services. The reason for this, based on the interviews conducted with the representatives of the proponent, the City Government of Tacloban, is that since the establishment of the project in 2003, no appropriate official livelihood intervention was ever implemented for the resettlement's beneficiaries. It simply means that households living in this resettlement site were left on their own right after relocation and may still be dependent up to this time from their previous livelihoods in the city center where they were previously located. Another possible reason which was actually confirmed by some residents who expressed their personal comments, is the shifting from old livelihood by other residents into merely sustenance farming.

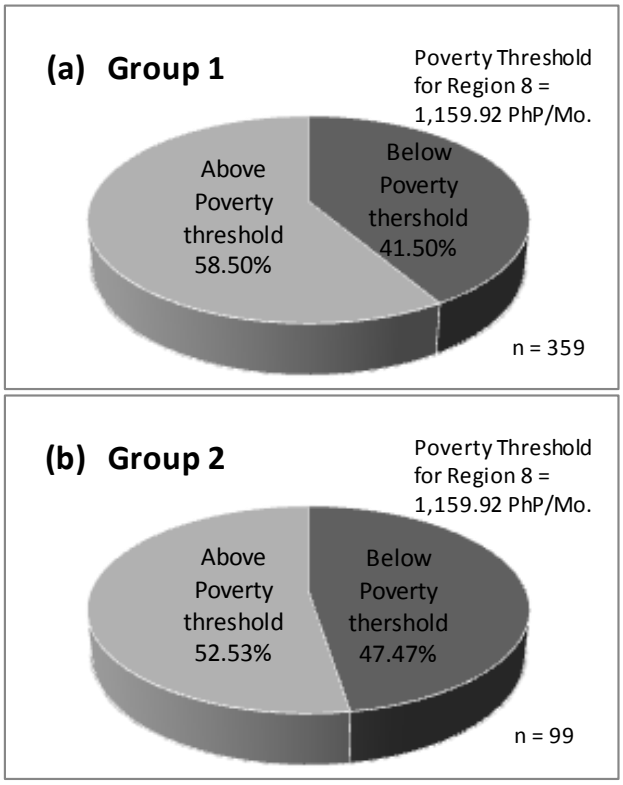


Fig. 7 Proportion of households in Groups 1 and 2 based on the regional poverty threshold of Eastern Visayas

Based on the regional poverty threshold for the Visayas region (Region 8) which is at P1,1592.92 per capita per month, 41.50% of households in Group 1 is below poverty threshold, that is 13% lower than that of Group 2 which is at 47.47% (Fig. 7). In Group 1, majority of the working members are self-employed (47.52%) followed by employed (41.20%), either regular or temporary in private and public establishments, and the rest are either having their own business or other forms of livelihood (Fig. 8a). Contrary to Group 1, in Group 2, the majority of workers are employed either temporary or permanent in private and public establishments (51.72%) followed by self-employment (43.45%) and the rest have their own businesses or other forms of livelihood (Fig. 8b). Self-employment in this paper refers to livelihood activities such as food vending, fish vending, barbeque stalls, part time tricycle and jeepney drivers, part time laborers and other odd jobs which are temporary in nature. Business, on the other hand refers to small or medium sized but legitimate business, meaning with license to operate,

such as bakery, licensed variety store, licensed eatery and the like.

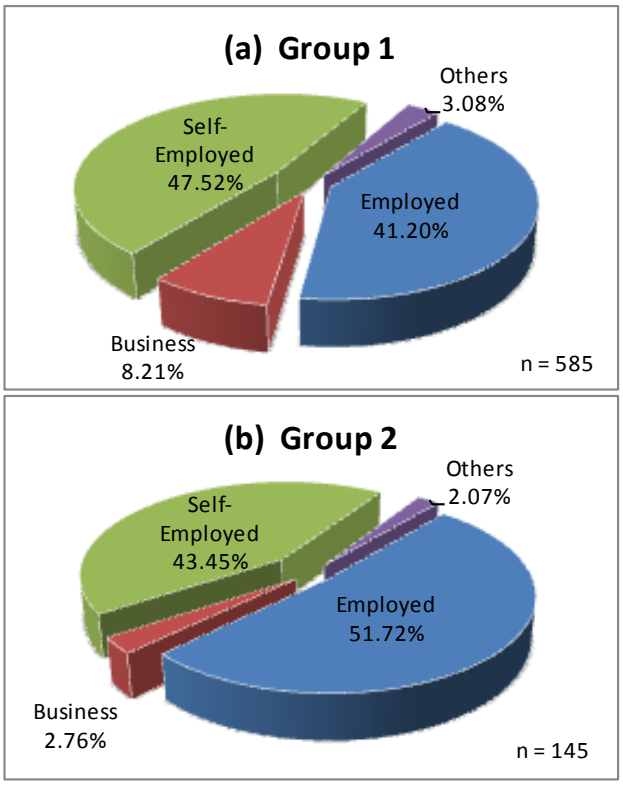


Fig. 8 Occupational profile of household working members in both Groups 1 and 2

(2) Changes in living conditions as a result of relocation

Though samples examined in this paper are unrelated due to the fact that previous circumstances of Group 2 cannot be readily ascertained, it is assumed that living conditions of Group 2 before they were relocated, are similar with that of Group 1, the existing slum dwellers. This is mainly because sample households used for Group 1 comes from various slum colonies of the city and it includes the existing remaining slum households adjacent (and with similar conditions) to the previous location where the households of Group 2 came from.

In terms of type of housing, result showed that households belonging to Group 2 are now able to improve their houses using permanent and stronger materials (39%) as compared to households in Group 1 (26%) as indicated in Fig. 9. Though there is still a considerable proportion of households using light, temporary and salvaged materials of about 61%, such is actually still lower than the proportion in Group 1 having about 74%. Such kind of condition however, doesn't last so long and is expected to still drastically improve in several years. It becomes possible since the resettlement program is in fact intended to provide beneficiaries with security of tenure. This feeling of security amongst the beneficiaries (which they didn't have while they were still in the slu settlements) motivates households to invest on the construction of their houses despite limitations in financial resources.

House improvement usually comes by stages, wherein, relocatees initially builtd their houses from materials salvaged from their demolished houses in the slums, but as soon as they have fully settled on the new site and as soon as money from savings becomes available, they start improving their houses section by section using stronger and more perpanent materials such as concrete hollow blocks for walls and galvanized iron sheets for roofing. This process usually takes years to complete.

Other improvements brought about by the relocation in the living environment of the beneficiaries are the lower density of houses, better sanitation and drainage system, better road network within the settlement area and better air quality. As provided in the standards of development in the Philippines, a balanced land utilization scheme is mandated whereby only 70% of the total area of the site is allowed to be inhabited leaving the 30% for greens and open spaces. Such cannot be enjoyed in the existing slum settlements elsewhere.

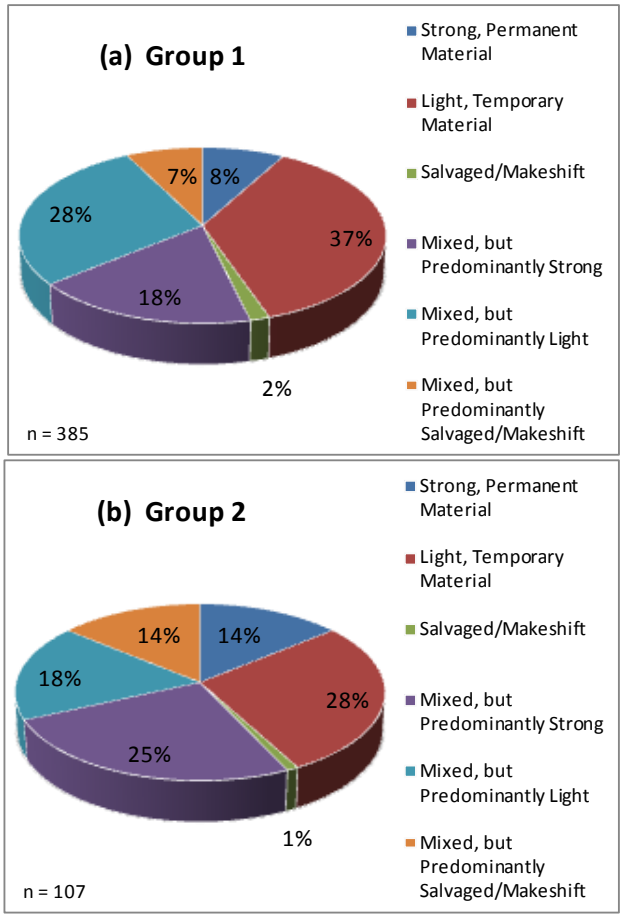


Fig. 9 Type of materials used for housing in both Groups 1 and 2

(3) Differences in lifestyle in terms of time utilization

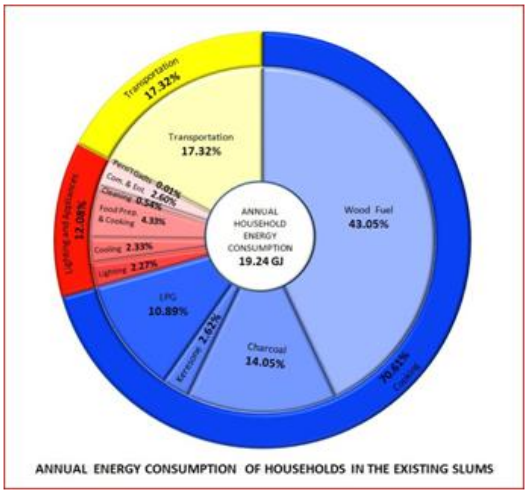
This paper examines the differences in lifestyle between the subject groups to assess the apparent change brought about by relocation. Lifestyle in this paper refers to time utilization in performing daily routine household (or household members) activities. To examine the difference, we tried to identify these activities and ask the respondents when and how often they are doing each activity in each day. Examination was done for the working members of the family as they are the most affected individuals amongst the household members. Appendix A shows a time utilization chart comparing daily routine activities working households members in Groups 1 and 2 are able to do during weekdays. The chart uses dots and whiskers to illustrate mean time of each activity performance and the corresponding possitve and negative deviations, respectively. Though there are a lot of household activities reported during the conduct of survey, not all are actually being done by significant number of household members. In the chart of Appendix A, activities not being performed by at least ten percent of the sample were discarded from the analysis except for the "Leaving Home for Work" and "Arriving Home" activities. For Goup 1, there are 635 workers in consideration while for Group 2, there are 145 workers. Proportions reflected on the chart, particularly on the "Leaving for Work" and "Arriving Home" are based on the above sample size.

One glaring difference that can readily be spotted is on the proportion of workers who come back home at mid-day. Though the pattern seems almost similar between the two groups, the figure shows that a much larger proportion of workers in Group 1 of about 32% comes back home sometime around 10:00 in the mornig as compared to just 12% in Group 2 in almost the same time frame. In the afternoon, about 28% of workers in Group 1 leaves again for work, whereas in Group 2 only 8% leaves again for work. At night, almost all who leave in the morning return home at around 6:00 in the evening. The proximity and accessibility of the workers' houses from place of work is undoubtedly the main cause of this difference. Other reasons can be attributed to limited budget for transportation and time wasted for traveling with regards to workers in Group 2, or perhaps the limited public transportation plying the route towards the resettlement site as well.

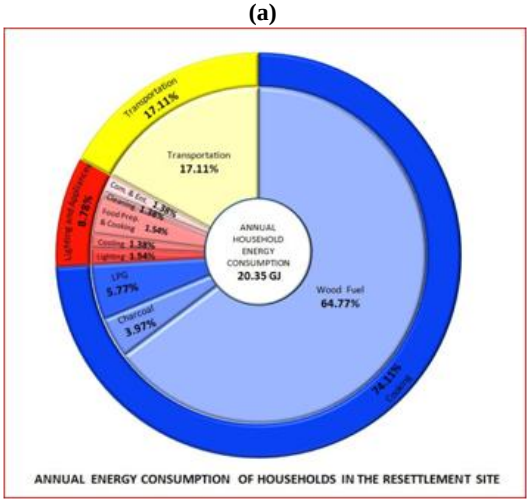
Another difference can be spotted on the number of times of cooking per day. The chart shows that workers in Group 1 cooks more frequently (3 times in a day) than with the workers in Group 2 (2 times in a day). The reason could be pretty obvious since more workers in Group 1 comes home at mid-day for eating, thus, they have to cook at noon. However, since we are only looking at the working members of the household here, it may not be an accurate representative for the whole household. Further analysis is necessary considering other members of the family, especially the non-workers who are just at home, in order to fully assess the overall lifestyle differences between the groups 1 and 2.

(4) Energy Consumption

The total household energy consumption profiles of the two groups are summarized in Figa. 9a and 9b. Both indoor and outdoor direct energy consumption were investigated in this paper. Indoor energy consumption consisted of cooking energy and electricity consumptions while the outdoor energy consumption consisted of the proportionate petrol or diesel consumption for transportation. Total household energy consumption is the summation of all of the above converted into Joules as a unified measure.



(a)



(b)

Fig. 9 Annual Household Energy Consumption Profile of Groups 1 and 2

In terms of proportion, groups 1 and 2 share similar consumption pattern. The least share is on electricity comprising onliy of 12.08% in Group 1 and much lower share of 8.78% in Group 2. Food preparation and cooking have the highest consumption corresponding to 4.38% in Group 1 and 3.63% in Group 2. This is mainly attributable to the use of refrigerators and rice cookers. Other usages are of minimal shares. This is due to the fact that affordability in both purchasing of electric appliances and electricity connection subscription is very low. Figs. 10 to 12 below shows the profile of appliance ownership, type of electricity service connection and reasons of not having their own legal electricity connection, respectively:

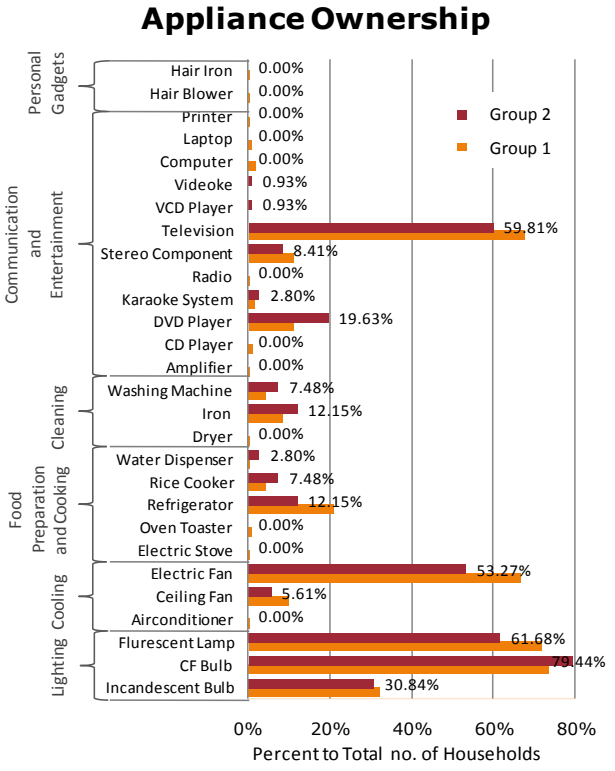


Fig. 10 Comparison of Household Appliance Ownership in Groups 1 and 2

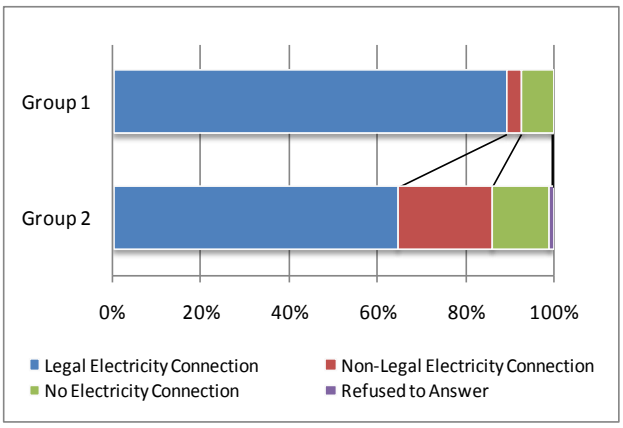


Fig. 11 Type of electricity service connections in groups 1 and 2

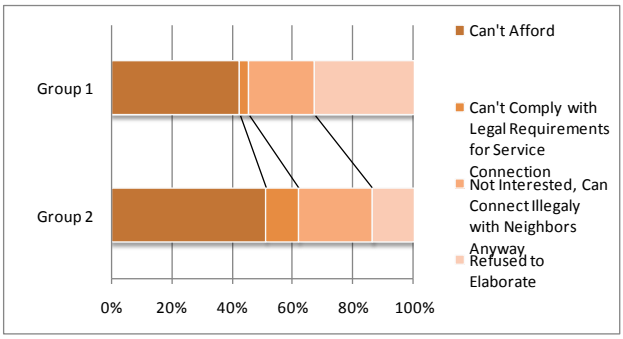


Fig. 12 Reasons of not having legal electric service connection

Share of consumption for transportation over the total household energy consumption is similar at 17% in both groups. Although in absolute terms, households in Group 2 consumes a little more than that of households in group 1 considering longer distance being traveled daily. Fig. 13 shows the relative distances traveled by household members during weekdays.

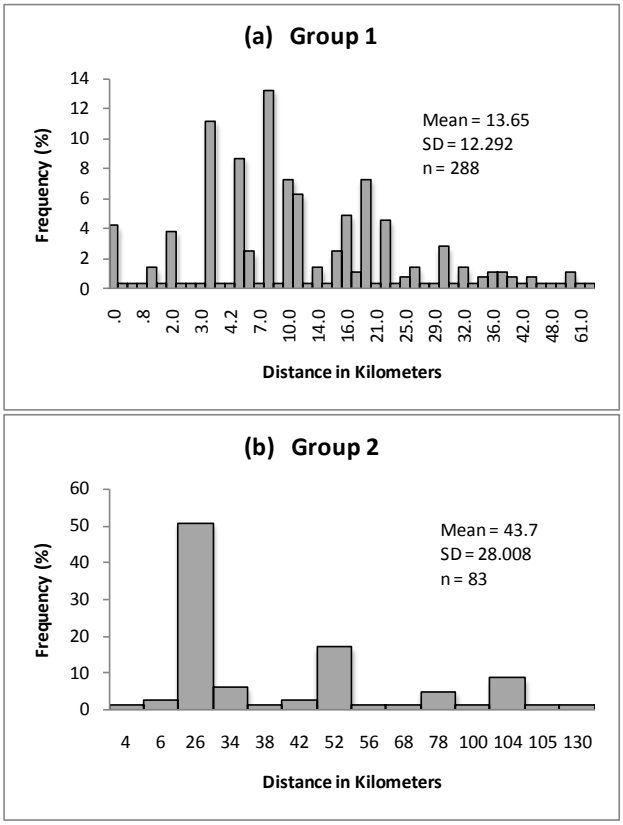


Fig. 13 Relative distances traveled by households in Groups 1 and 2 during weekdays

As the result shows, cooking consumes the highest energy corresponding to 71% in Group 1 and 74% in Group 2 based on total household energy consumptions. This is consistent with the findings of previous studies conducted in the Philippines and other developing countries regarding household energy consumption[9),10)]. It is easily conceivable that the

total energy consumption in both groups is greatly determined by the cooking methodology. Further examination on the ways of cooking revealed that the relocated households had become more of biomass users as compared to the existing slum dwellers of Tacloban City. Several reasons can be attributable to this shift, one is that the relocation site in Tacloban City is surrounded by thick vegetation and that wood fuel is freely accessible. Second, the unrelenting increases in petroleum product prices discourages households from using petroleum based cooking fuel products such as LPG and kerosene and therefore prefer the use of cheaper wood fuel. Households in Group 1 cannot enjoy the same opportunity since source of free wood fuel at the city is scarce. Third is the personal choice of other households to use wood for cooking especially in cooking rice. Some respondents said that rice taste better when cooked using wood. Figures 14 to 17 shows some pictures of the typical ways of cooking in both Groups 1 and 2.

Fig. 14 Improvised charcoal stove with electric blower

Fig. 15 Cooking in open fire using improvised metal frame

Fig. 16 Cooking in open fire using hollow blocks to support pot and improvised charcoal stove made of concrete

Fig. 17 typical 2-burner LPG stove

Contrary to the original assumption that the rise in income influences the change in lifestyle and in turn increase household energy consumption, the result of the analysis proved otherwise. With reference to household income, it shows that the mean energy consumption in Group 2 which is at 20.35GJ per year, turned out to be slightly higher than that in Group 1 having only 19.24 GJ per year in absolute terms despite the lower mean household income of the former. This result negates the general notion that the higher the income is the higher the energy consumption becomes. Such might be true for more affluent households but may not always be true in the lower brackets of household income especially in the slums.

5. CONCLUSION

This paper presented and discussed the result of the questionnaire survey conducted in the existing slums and the resettlement site of Tacloban City in an effort to explain and shed light on the impact of distant relocation of slum dwellers to their household energy consumption. Result have shown some possitive impacts such as the improvement on the living environment of the relocated households. The resettlement program, at first glance may as well had been very enticing and promising with the good intentions of improving the overall living situation of its beneficiaries. However, result of this study shows the contrary. One concern, and probably the most sought for among the relocates is the improvement in household income. Result showed that there had been actually more households below the poverty threshold in Group 2 as compared in Group 1. Though we cannot say that their circumstances had worsen but as part of the resettlement program, livehood intervention should have been implemented ince the start of the relocation process. The neglect of authorities to remedy the situation would further deteriorate the overall living standard of the beneficiaries and if prolonged, it may cause abandonement of awarded houses (or plots for that matter) and the

return of these households to the slums.

The second concern, which is probably overlooked by the authorities, is about the effect of this relocation on the energy consumption of the relocated households. As the result of this study shows, even households with lower income in Group 2 surpasses their energy consumption with those in Group 1. In terms of traveling, households in Group 2 travels more than double the distance being traveled by the households in Group 1. This can be translated into a similarly more than double in energy consumption in absolute terms. The trend is expected to be more pronounced as their income increase since the affordability of buying own vehicles and fuel will be enhanced. The probable solution to this is to locate the resettlement site as near as possible to their places of work. Situating the sites for resettlement too distant from the city center, such as the case in Tacloban City, would stimulate a premature urban sprawl and inturn would require more cost and energy in the long run, not only for the beneficiaries but likewise for the government in delivering basic service to the community.

Still on energy, as the study shows, cooking is the determinant of the total household energy consumption. The fact that the resettled households become more wood fuel users, several problems would eventually arise on top of the apparent increase in absolute comsumption. Household and community safety may be the utmost concern. Considering that the typical method of cooking using wood is in open air, the danger of breaking up fire disaster is likely. Deforestation may as well become evident in the long run if this will not be managed effectively. Health impact due to air pollution may also come in, especially within the households members who are frequently exposed to smoke from burning wood. An of course the increased fuel consumption due to low cooking efficiency of wood fuel.

A simple but possible remedy by promoting the use of improved cookstoves might prove useful during the transition stage of the resettled households which may as well have a possitive environmental effect in the long run. At their simplest, improved stoves rely on providing an enclosure for the fire to cut down on the loss of radiant heat and protect it against the wind thereby increasing efficiency and allowing savings of wood fuel by up to 40%[11].

Resettlement program might indeed provide significant improvement in the lives of it beneficiaries, the slum dwellers in particular, though not soon enough, maybe later. It is the intent of the government, no doubt, to uplift these people from their depressed condition and elevate their standards of living. However, in doing so it is always worthwhile to put into consideration the environmental impacts of such efforts. This paper shows in a very simple way the effects of distant relocation to lives of the beneficiaries as well as the trend in their energy consumption. It hopes to stimulate further and deeper studies on slums and the energy consumption issues and finally provide solutions in tackle both issues in a more subtle and humane way.

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APPENDIX A :

Time Utilization Chart : Comparison of daily routine activities and time utilization during weekdays between working household members of Groups 1 and 2

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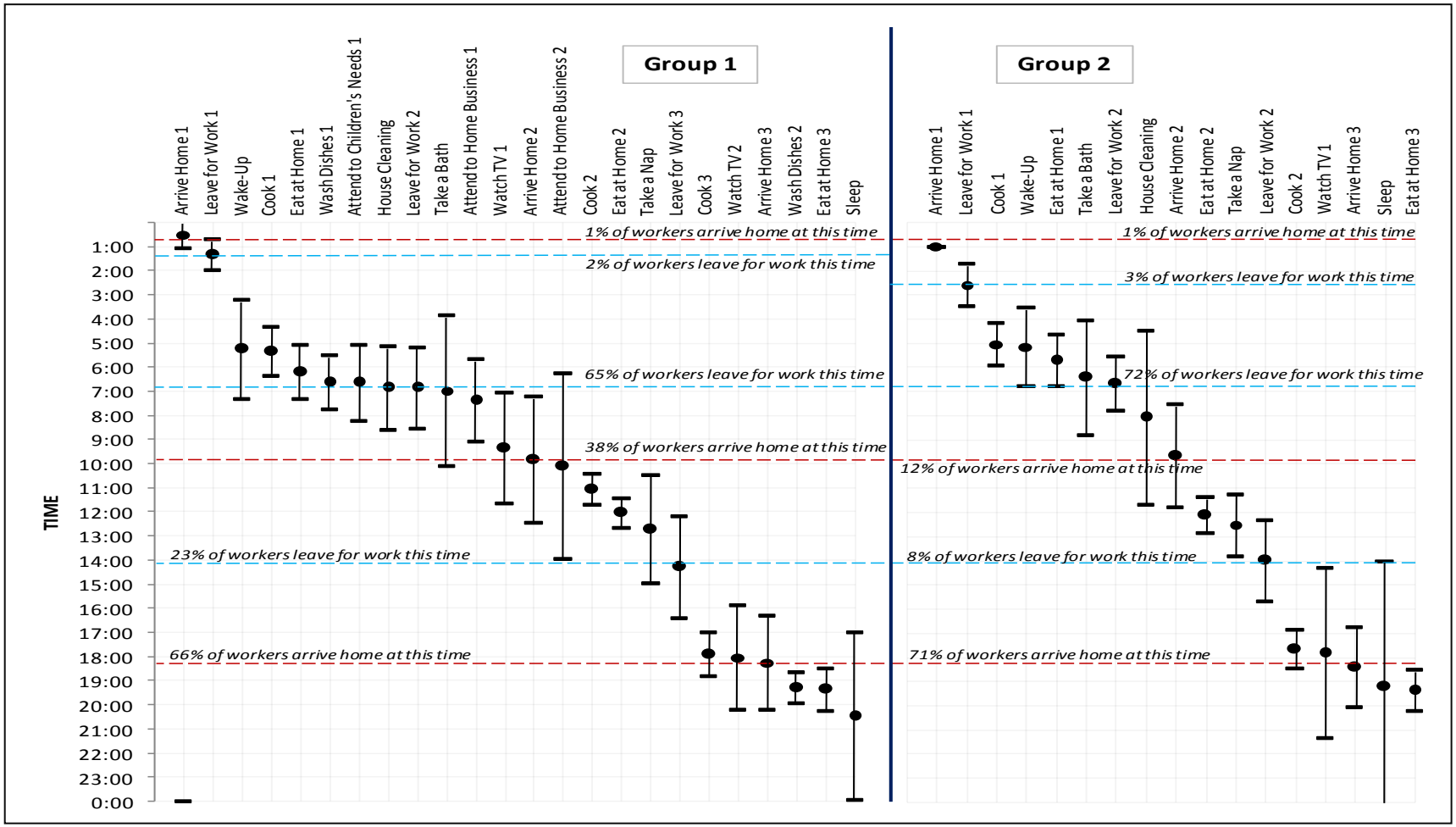
APPENDIX A



Time Utilization Chart : Comparison of daily routine activities and time utilization during weekdays between working household members of Groups 1 and 2