



HOUSING TRANSFORMATION PROCESS IN GOVERNMENT PROVIDED REHABILITATION PROJECT: A STUDY OF BHANDARPARA ASHRAYAN PROKOLPO

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Abstract

Housing transformation is a commonly practiced phenomenon, especially in government-provided housing all over the world. In Bangladesh as well, the government-provided rehabilitation housing, like *Asbrayan* projects, experiences transformation of physical elements according to the dwellers' needs. This physical transformation of housing indicates an existing gap between the housing provision process and users' needs. These transformations also reflect many unidentified indicators like traditional dwelling patterns, building materials, flexibility, livelihood options, and accommodation of the dwellers' next generation, etc. that could be helpful to meet the noble vision of *Asbrayan* projects. A critical understanding of the housing transformation process will help to formulate a more user-centric rehabilitation approach. The aim of this study is to investigate the process of housing transformation and identify decisive indicators causing the transformation in the development and construction phases of government-provided rehabilitation projects. The rehabilitation project of Bhandarpara Ashrayan, in Khulna, a southern district of Bangladesh, was chosen as the case of this study. The project accommodates 260 households in 26 barracks. Among the population, 33 households were chosen as samples for morphological analysis using qualitative techniques. The finding implies that users gradually altered the government-provided housing units. Direct labor, locally available materials, and a self-help approach without the need for building designs or authorizations were well-used indicators in the housing transformation process.

Keywords: Process, housing transformation, government provided rehabilitation housing

Introduction

Housing transformation refers to a scenario when households make significant renovations, extensions, modifications, or additions to the original forms, extent, patterns, and uses of their buildings, including their surrounding environment, in response to their demands (Peek et al., 2018; Tipple & Ameen, 1999). In the global south, transformation of housing has taken place in the form of physical appearance, interior

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components, and spatial orientation, which are changed thoroughly to reflect users' socio-cultural and economic needs (Aduwo & Ibem, 2017; Shiferaw, 1998). Since independence, the housing provision for marginalized groups has always been ignored in the National Housing Policy (NHP) as well as in the Five Year Plans of the government of Bangladesh. Bangladesh has no national policy on housing rehabilitation or resettlement. The National Housing Policy (NHP) 2016 narrowly delineates the term 'resettlement' by mentioning the role of the government as the house 'provider' (NHA, 2016). The present government of Bangladesh initiated the *Ashrayan* rehabilitation program in 1997, during their first tenure, where rural housing has been adopted as a strategic instrument for alleviating poverty through resettlements of the landless, homeless and destitute people. Since 2022, the rehabilitation program has resettled almost 117,319 families on government owned land. Through the construction of barrack houses, the *Ashrayan* initiatives aimed to rehabilitate the homeless population (PMO, 2020). The Prime Minister's Office (PMO) deals with and executes these projects directly through the use of different government agencies. The authoritarian position of the government agencies focuses more on the construction of barracks without considering the strengths of the users and their context. Since independence, the governments have developed a number of resettlement programs to relocate and rehabilitate people, like- *Ghore Phera* (Return Home), *Adarsha Gram Prokolpo* (Ideal Village Project), *Abashon* (Shelter), *Guchhogram* (Cluster Village), *Ashrayan Prokolpo* (Sheltering Project), *Ashrayan 2 Prokolpo* (Sheltering 2 Project). Subsidies were provided through various programs, including loans for income-generating activities in rural areas, construction of barrack-style shelters on *kehas* land (government-owned land), and credit to relocate from urban to rural areas. However, policy initiatives are more concerned with supply-driven subsidies (barrack house construction) than with the needs and capacities of the targeted population in terms of their socio-cultural, socio-economic, socio-spatial, and environmental factors. The top-down government housing rehabilitation initiatives in Bangladesh were not socially sustainable or spatially livable for the targeted population (Choguill, 1988; Rahman, 2017; Ray, 2016). Most of the cases in global south, the rehabilitation program is criticized for being inflexible, excessively technical, and not considering the hidden socio-economic, socio-cultural, environmental, and socio-spatial constructs of the targeted people (Ajibade, 2019; Hassan, 2011). As a result, the targeted people try to fulfill their needs through self-initiated housing transformation. These self-initiated transformations also indicate a knowledge gap for the design professionals, policy makers and government agencies in the design and construction stages of rehabilitation programs (De Paris & Lopes, 2018; Makachia, 2015). Addressing various types of transformation is also difficult during the design development phase because the scale, process, and modes of transformation vary from context to context. Therefore, context and case-specific experiences can be helpful in the design development and construction phases of government-provided housing projects. A thorough examination of the housing transformation phenomenon is required to comprehend the actual needs of the inhabitants and to address their own homemaking process. Thus, the intention of this study is to bridge the gap in knowledge as stated, for the benefit of policy makers, designers and researchers in the field of resettlement or rehabilitation. This study focuses on physical aspects of user-driven housing transformation, specifically in a government-provided housing rehabilitation program in Bangladesh known as Project *Ashrayan*. The aim of this study is to investigate the process of housing transformation and identify decisive indicators causing the transformation in the development and construction phases of government-provided rehabilitation projects.

The rest of the paper is organized as follows. The next section reviews the literatures in light of government top-down rehabilitation initiatives, physical transformations of housing based on user's need and their role in transformation. Section three describes the study area and research methods. Section four discusses the findings. In Section five, the study is concluded with some recommendations.

Literature Review

Most of the literature on the physical transformation of housing from the global south shows that the targeted people are not consulted about their housing preferences and their socio-physical livability during pre-rehabilitation stages (Aduwo & Ibem, 2017; Carrasco et al., 2016; Danquah et al., 2015). Policymakers in

rehabilitation process, often neglect the socio-spatial aspects, which results in the destruction of the organic spatial texture of rural settlements and hinders the inheritance of the traditional rural spatial form. In most of the rehabilitation projects the so-called higher life standards are achieved with modern building materials and planning that diverges from the traditional architectural typology relating to the years of experience of the users (Büyüksahin, 2020; Yanbo et al., 2018). Regarding the construction of houses, the rehabilitation projects endorses a fixed prototype design of (barrack) 'house' as the 'standard solution' for thousands of resettlement projects irrespective of the geo-climatic location of the project and socio-spatial practices of the people to resettle. The authorities retain complete control over the quality, quantity, design and construction of housing, with little or no room for users' participation. Inefficient space design, poor planning and construction without local knowledge and expertise create socio-spatial injustice. Spatial vulnerability results from the lack of local adaptation expertise and homemaking participation among users during design and construction stages (Czischke, 2018; Patel et al., 2015; Sarkar & Bardhan, 2020). As a result, this unsatisfactory living situation causes the modification, extension, or transformation of the supplied house according to the socio-economic and socio-spatial needs of the users. These users initiated transformation in government rehabilitation program are very common in global south. These transformations are a result of a number of factors, including environmental factors like local climate, socio-cultural factors like local lifestyle, economic factors like income generation, and demographic factors like density (Abed et al., 2022; Al-Naim & Mahmud, 2007; Carrasco et al., 2016; Danquah et al., 2015; Mahmud, 2013; Tipple & Ameen, 1999).

The two types of housing transformations that are frequently seen in the global south are exterior transformation and interior transformation. These two types of housing transformations are based on the primary physical components of the built form, such as the base/floor, boundary/wall, and cover/roof planes. However, extensions of built form like, extra room, kitchen, bath or toilet space, storage space, small shops, transformed courtyard are also common scenarios in different cases of rehabilitation projects (Asante & Ehwi, 2022; Elahi & Ameen, 2012; Inançoğlu & Uzunoglu, 2020; Rashid, 2019; Tipple, 1992). The majority of these transformations used local building materials and local construction techniques. Physical transformations of housing and user-initiated transformation are one of the most important phenomena in most of the developing countries. Those transformations are prominent in government-provided housing because that housing offers limited opportunities for the users and, a uniform and monotonous appearance without any flexibility (De Paris & Lopes, 2018; Tamés, 2004). Variety and flexibility continue to be necessary conditions for efficient, affordable, and quantifiable production that enables the virtues of housing as a decentralized and incremental process (Hamdi, 1995; Wagemann, 2017). It is important to ensure variety and flexibility in the design stage of the government-provided housing to accommodate users' needs and aspirations. The flexible design through users' participation and autonomy in design development confirms the local socio-spatial and environmental constructs (Buckland & Rahman, 1999; Maly & Shiozaki, 2012; Turner, 1972). Therefore, it is necessary to consider housing transformation factors during the pre-rehabilitation stage by ensuring users' involvement to overcome the knowledge gap of the policy makers and design professionals.

Like other parts of the global south, housing transformation is also taking place in Bangladesh. The researchers reveal that housing transformation activities through local homemaking knowledge enhance the demographic, social, and income generating potential, where the belongingness of inhabitants plays a major role (Elahi & Ameen, 2012; Mahmud, 2013; Rashid, 2019; Tipple & Ameen, 1999). In most of the cases, the inhabitants were involved in the decision-making process and transformed their living spaces using local materials and construction techniques through collaboration with local stakeholders. Tenure security plays a major role in the transformation of housing. The low-income inhabitants also use recycled materials and temporary construction techniques for transformation. Decision-making in households and at the community level is one of the key factors for housing transformation. The transformation also takes place in the *Asbrayan Prokolo* rehabilitation project, which is evident from the empirical data of this study. The outcome of the *Asbrayan Prokolo* is also a ready-to-dwell 'barrack house' with some state controlled economic initiatives. The product-driven outcome denies the socio-cultural, socio-economic, socio-spatial and environmental practices of the

homemaking process of the targeted populace. In spite of the fact that user-initiated housing transformation is often not acknowledged by the government or other authorities, it is evident from the findings of the literature that both the user and the government benefit from the process. This study investigates the housing transformation in the *Ashrayan* rehabilitation project based on the role of the stakeholders, the decision-making process, and building materials and construction techniques.

Methodology

This study incorporated a case study method to investigate the housing transformation in government-provided *Ashrayan Prokolpo*. The case was selected from *Bhandarpara* Union at *Dumuria* Upazilla, known as *Bhandarpara Ashrayan*. A questionnaire survey was conducted in order to understand the general situation at the *Bhandarpara Ashrayan*. The survey covered 33 households in the *Ashrayan*. Data were collected using (a) a household questionnaire survey, with the sample consisting of 33 households out of 33 units, and the survey covering demographics and household profiles; pre-disaster housing conditions; and housing transformations implemented after beneficiaries were assigned; (b) a housing morphological analysis, which included a technical survey to categorize the housing transformation; and (c) graphic documentation, which included photographs of the settlement. The information collected was analyzed with regard to the definition of transformation patterns and the current use of the spaces built. Additionally, the reasons for the transformation were analyzed in light of the particular issues found at the rehabilitation site.

The case area

The selection of *Bhandarpara Ashrayan* as a case study area is motivated by the fact that it is rich in information for learning about the study objectives (Patton, 1987). *Bhandarpara Ashrayan* is an important settlement for a detailed study because it is one of the most densely populated neighborhoods in the Khulna region and housing transformation is highly manifested.



Figure 1. Map of Bangladesh.



Figure 2. Map of Khulna district.



Figure 3. Location of Bhandarpara region in Dumuria Upazila.



Figure 4. Google map of Bhandarpara Ashrayan (Present Scenario).

Respondents' demographic profile

The demographic profile of the responders is outlined in this section. Male respondents made up 67.9% of the sample, while female respondents made up the remaining 32.1% (Figure 7). The respondents' ages ranged from 22 years (the youngest) to 62 years (the oldest), while 85% were Muslims and 15% were Hindus (Figure 5). In terms of educational background, almost half of the respondents were illiterate. In particular, those with primary education were 34%, those with secondary education were 22%, and 44% claimed that they had no formal education.

As for household income, 30% earn up to 12,000 BDT per month, while 26% earn 12,000-16,000 BDT per month, 20% earn up to 16,000-20,000 BDT per month, and 8% earn over 20,000 BDT per month. The rest of the people are unemployed. The respondents' primary sources of income (Figure 6) include day labor (47%), farming (38%), businesses (10%), and driving (5%). One of the noteworthy facts is that every household in this area has a secondary income source such as homestead farming, poultry raising, and cattle raising. The percentage of dwell time of the respondents from 2000 to 2018 was 55%, from 2004 to 2018 it was 35%, and from 2015 to 2018 it was 10% (Figure 8).

Discussion of Findings

Role of stakeholders

The transformation process was self-initiated, and the design, construction, and material procurement were primarily guided by the user's self-help. Self-help process was predominant without any external support in the first and second phase transformations like in those of the *Dumuria Bhandarpara Ashrayan Prakalpa*. The family members of the individual units performed most of the building tasks, with occasional assistance from their friends and other relatives, or paid labor in some rare cases. Three levels of social structure dominated the decision to transform throughout the construction phase. There were three of the stakeholders: the community committee, adjacent families, and residents of each unit. In the government-provided unit, users made all the decisions regarding transformation. Outside the unit, the community committee takes all the decisions (Figure 9). Besides the users and community committee, some other decisions were made when two adjacent families added something new to their unit. Therefore, strong examples of social negotiation and

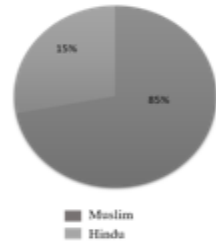


Figure 5: Religion

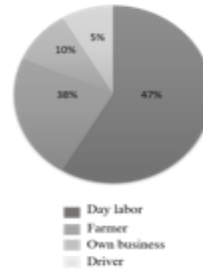


Figure 6: Household main source of income

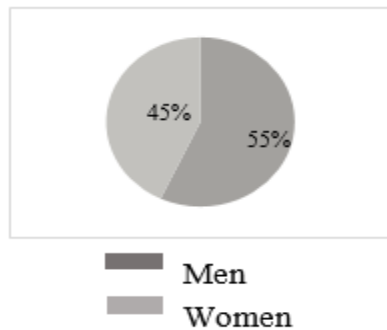


Figure 7: Male female ratio

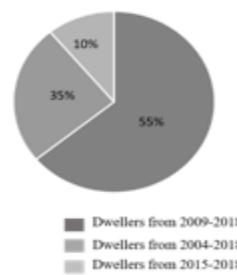


Figure 8: Dwelling

collaboration were found among the resettled users of the settlement regarding the housing transformation process.

The community committee decides the outdoor areas for each family

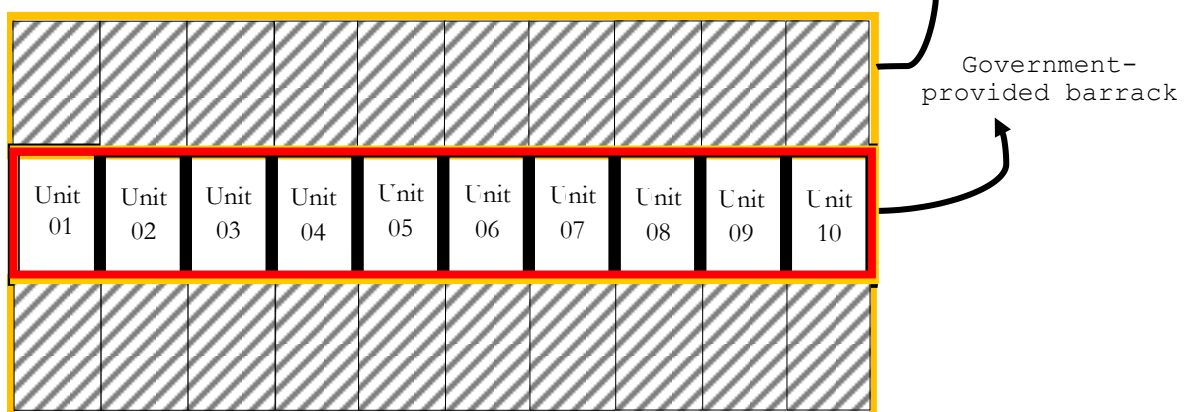


Figure 9. community representative secretary and their member decided the outdoor areas each family.

Decision making process

The government-provided unit failed to fulfill the users' need for space. The users need additional spaces and accommodated those extra spaces based on their spatial livability and housing affordability. In *Bhandarpara, Ashrayan* users needed extra space for their cooking purposes in the first phase of their lives. The indoor kitchen provided by the government was not compatible to their cooking practices and way of life. Their fuel consumption practices and open cooking habits were not suitable for indoor kitchens, and they thought that the most vulnerable space was the indoor cooking space due to the chance of fire hazards. To tackle this housing transformation issue, all the members of the *Bhandarpara Ashrayan* formed a committee. A secretary and the 10 members of the community ran the committee. The Committee decided that all of those who did not have a pipeline for their kitchen space had to use external outdoor space for their cooking purposes. A challenge aroused because the government only allotted a single unit with indoor kitchen. The outdoor spaces were segmented, and assigned those areas for each family was a big deal for the committee. Through negotiation and collaboration with all the members of the community, the committee assigned the adjacent backside and front side of the units for housing transformation according to the needs of the individual households. The user was the primary decision-maker over the type of extended form they want, and they were assigned the front and back of the parallel of their unit (Figure 10).

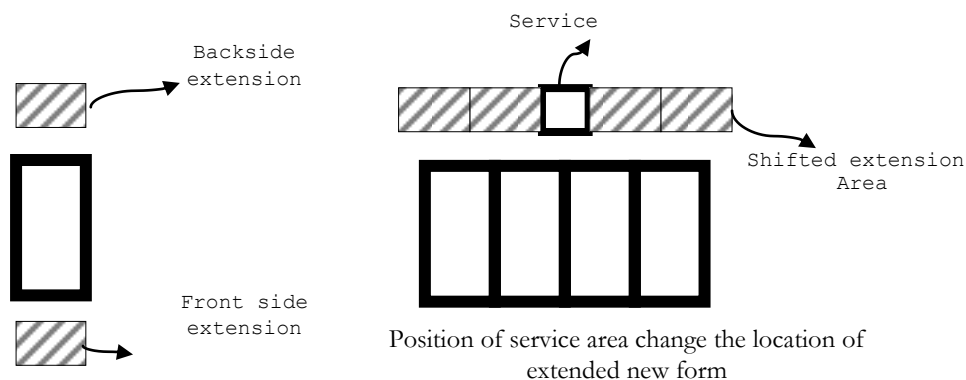


Figure 10. Addition of new built form.

The study in *Bhandarpara Ashrayan* focused on how users built new forms, such as shaded semi-outdoor space and enclosed forms, during the housing transformation process on the backside of the unit, sometimes merely constructing a new platform/plinth (the *vita*) for domestic activities of the relevant family. Analysis shows that from the first phase of the transformation, users use the space like a platform, which is usually open-air or sometimes shaded. But in the second and third phases of the unit, they constructed an enclosed form for their daily purposes.

The government also provided amenities like bathrooms and tube wells in addition to dwelling units. The government provided service areas like toilets and tube wells. The tube well was placed between two barracks of the *Ashrayan*, which was the public place of the barrack, but the toilet of each barrack placed at the backside of the barrack. The community of each barrack chose to redraw the boundaries of the backside as each household was allocated a portion of the barrack's backside. Negotiations among the barrack members led to this choice. There exists a common space for circulation purposes between the two barracks of the *Ashrayan*. Surrounding the circulation space, empty space could be worth the No. 1 unit and No. 10 units (there are 10 units in each barrack). The users of No 1 and No 10 units may use the front side, backside, or side space for extension purposes (Figure 11). The community of each barrack decided the net size of the

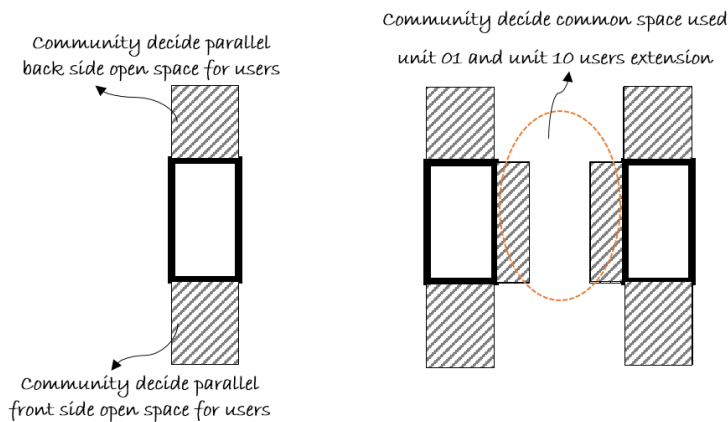


Figure 11. Indicate the extension space made by community decision.

extended space. The study reveals that the users were actively participate in the decision making process in collaboration with the community and other local stakeholders.

Any type of internal change of the dwelling unit, such as demolition of internal partitions, adding new partition walls, or sometimes the users' deciding the repositioning of the interior wall, was permitted. Usually users took decision about any kind of alteration of their units (Figure 12). Most of the cases in *Ashrayan* showed that internal doors were used as an outdoor extension form. The users decided that the variety of changes in their unit were essential for their daily activities. Sometimes users also decide to use the internal door as a false ceiling layer. That's why they could use the hanging space for their storage.

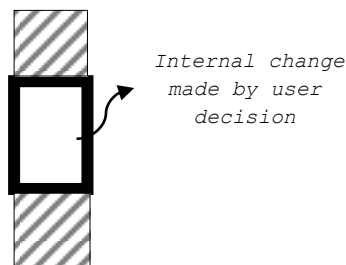


Figure 12. Alteration space made by user decision.

Building materials and construction techniques

Unlike the formal housing provided in cases where the materials used were predominantly factory processed, the user-initiated transformations chose other alternatives. Most of the cases, the users used local building materials or temporary materials for transformations. These "temporary" materials were often locally sourced or recycled factory products, and this implied lower costs to the users. This study revealed that mud from the surrounding yard was manually processed for the plinth and wall of the structure. Other local materials like bamboo, timber, and wood were also used for the wall surface. Some recycled materials like cement bags and polythene were also evident in the 'temporary' extensions. It is noteworthy that not all materials used in the temporary transformed extensions were manually processed. The construction detailing of the units was also informative as some products were used in their traditional techniques. This was a pragmatic choice to save costs. The user decided any transformations at the backside or front side of existing unit. Even besides the

common space of the barracks, the users decided what type of transformation they needed. Most of the time, the outside space was constructed by adding only shaded space or sometimes vegetation space for the unit. There was no enclosed area located beside the barracks. The overall housing transformation was carried out in a self-help approach in collaboration with the community, relatives, and sometimes with the help of local construction experts.



Figure 13. Using different variety of local materials

The study reveals the roles of different actors behind three types of user-initiated housing transformations in *Asbrayan* (Figure 14). In different types of transformations, family decisions, users' decisions, and community decisions plays vital role. It is also found that, in most of the cases of housing transformation, local materials and temporary construction technologies were used.

The key role players at various levels influenced the user-initiated physical transformation. The decision-making process played a vital role in transformation. From the discussion by FGD, it has been found that three levels of social structure dominated in the decision-making process, those are- 1) household level, 2) adjacent family level and 3) community level. The outside of the unit area was assigned by community decision for all the users. Then users could make whatever changes they wanted in the outside area. Findings also revealed that any kind of external change to the unit was dependent on the user's decision. The study also found that construction technique also plays a major role in user-initiated transformation. It was found that local materials were used for any kind of external changes. In most cases, repositioning of provided partition walls was found in internal spaces.

Finally, the study tried to synthesis the overall process (Figure 14) of user initiated physical transformation in *Asbrayan Prokolpo*, describing the overall tendencies and scenario of housing transformation. The Figure 14 provided a way of looking at *Asbrayan*. The typology, underlying key issues, and users' transformation process were presented in the Figure 14 to understand the process of social livability of the habitant.

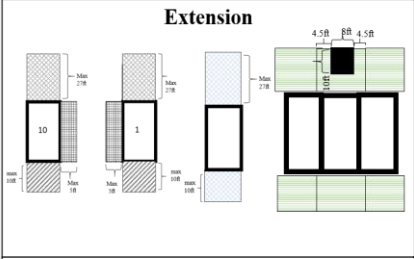



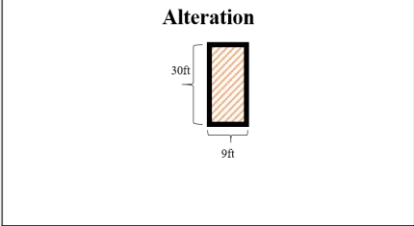

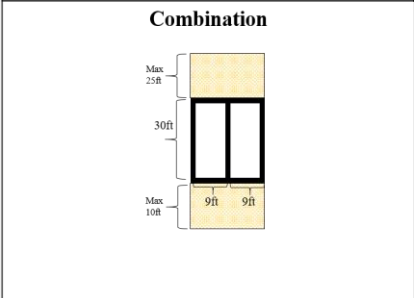

Typology	Role player behind of UITs
<p style="text-align: center;">Extension</p> 	<p style="text-align: center;">Role player behind of UITs</p> <ul style="list-style-type: none">  Area distribution for individual Family – community decision  External Extension – users' decision  Extension shift for service-Community decision <p>Construction technique- Temporary Material- local, Reusable</p>
<p style="text-align: center;">Alteration</p> 	<ul style="list-style-type: none">  Internal Alteration – users' decision <p>Construction technique- Temporary Material- local, Reusable</p>
<p style="text-align: center;">Combination</p> 	<ul style="list-style-type: none">  Extension by combination – family decision <p>Construction technique- semi-permanent Material- mixed industrial & local</p>

Figure 14. User Initiated Physical Transformation Process of *Ashrayan Prokolpo*.

Conclusion and recommendations

This study presents different types of physical extensions and their main characteristics. These extensions are based on specific users' motivations and result from users' needs and local conditions that were not considered in the government-provided building environment and policy book of *Ashrayan*. Thus, the construction of extensions provides the opportunity for users to control the changes in the design of their houses. It is clear that in the rehabilitation program carried out in *Ashrayan Prakalpa*, the priority was to complete the construction of a large number of barracks in a limited period of time rather than understand the users' needs, priorities, and local conditions. Thus, it is necessary to consider a change in the process from the top-down to a user-driven rehabilitation approach for the future. The study reveals that the process of implementation needs to include activities for necessary local research components (social-cultural survey, anthropological study, socio-spatial study, landscape-waterscape-environmental survey, and so on) to develop an empirical knowledge base that is crucial to inform the physical-spatial planning considerations and design decisions. Before any resettlement intervention, it is important to understand the local people-place-context through research-based knowledge. The findings recommend the following key strategies to a more people-driven approach for the resettlement program.

- 1) Investigate the targeted people during the pre-rehabilitation stage about their socio-cultural, socio-economic, and socio-spatial indicators.

- 2) Enabling households and communities to decide upon and design their own housing according to the local age-old experiences of the homemaking process with local building materials and technologies.
- 3) Enabling the community by giving dwellers autonomy in the decision making of the housing transformation process.

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