Exploring The Appropriateness of the Royal Initiative for Housing for The Low-Income Group in Jordan

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Abstract. This research explores a large scale affordable housing scheme in Jordan, the Royal Initiative for Housing (RIH) 2008-2013, directed for low-income groups and implemented by the Housing and Urban Development Corporation (HUDC). The scheme aimed to enable, within five years, one hundred thousand citizens with monthly income of less than JD300, working or retired military, governmental and private sector, to own their houses at subsidized prices, in ten housing projects located in five Jordanian governorates. Initial indicators featured a disparity between design intentions and users’ expectations, causing a gap between implemented planning and the target group satisfaction. The purpose of this research was to investigate the appropriateness of RIH for the low-income groups in Jordan. It was hypothesized that the beneficiary’s housing satisfaction was affected by different attributes including project location, housing unit design, project design, financial, infrastructure, environmental, and social issues, which resulted in low selling rates of the housing units. A mixed methods research design was used. Both quantitative and qualitative data were collected from the archives of HUDC and newspaper, face-to-face interviews with the beneficiaries, and telephone interviews with the non-beneficiaries, and field observations. For the face-to-face interviews, a proportional random sampling technique was used to select the subjects, which consisted of 385 household heads who lived in the ten housing projects of the scheme. In addition, 30 non-beneficiaries were randomly selected from the applicants’ names list available at HUDC for telephone interviews. Housing satisfaction was defined by satisfaction with the housing unit and satisfaction with project selection. Initial results indicated that the implemented scheme suffered from planning and design shortages, financial difficulties, infrastructural, environmental, and social problems. It was concluded that the implemented scheme did not match up all planning attributes, and did achieve the vision of providing affordable housing for the target group. Findings implied a deficiency in the pricing methods implemented by HUDC, as well as in the financial issues. It indicated that beneficiaries from the scheme were from a higher income group. Beneficiary’s satisfaction was not based on financial issues. Findings also indicated the importance of providing and operating infrastructure, facilities, and services in each implemented project, as these attributes proved significant to the beneficiary’s housing satisfaction. It is hoped that the learning lessons will enhance future initiatives and provide an additional value to low-income housing initiatives in Jordan. The solution for such initiatives is not by providing new residential units, but by building an integrative housing setting and by providing for the target group.
1. Introduction
Housing is a basic human need, which is fundamental for the economic and social well-being [1]. Al-Faqih [2] stated that living standards, quality improvement, and social performance must fit household aspirations. Home ownership is a strong aspiration that for many remains unfulfilled [1]. Excessive urbanization increased urban housing prices, which affected low and lower middle income households. It caused a rapid expansion of unplanned urban settlements characterized by lack of basic infrastructure and services, overcrowding, and low housing conditions [3]. Jordan experienced a rapid growth in urbanization, rising from 59% in 1979 to about 82.6% in 2010. Affordable housing is a major challenge for Jordan, with a population of over six million people, increasing at a rate of 2.2% annually with a density of 70.4 person/km² [4].

The Jordanian Government initiated many activities in the housing sector to supply such demand. It established the Housing Corporation (1966), the Housing Bank (1973), the Military Housing Corporation (1974), the Urban Development Department (1980), and the Housing and Urban Development Corporation (HUDC) (1992). HUDC implemented housing programs and policies with the objective to provide suitable housing and related services for low and middle-income households, reduce the gap between supply and demand, lead the housing sector contribution to national development, and enable limited income groups to access adequate housing. HUDC implemented 360 projects, which make about 130114 housing units and serviced plots that benefited about 400,000 individuals [5].

King Abdullah II of Jordan launched several initiatives like, Teachers’ Housing, Universities’ Housing Funds, King Abdullah II Underprivileged Families’ Housing Project in 2005, King Abdullah Bin Abdel Aziz city in 2007, and finally The Royal Initiative for Housing (RIH) in 2008-2013. RIH vision was to provide housing for hundreds of thousands of low and limited income Jordanians including civil servants, Jordan Armed Forces personnel, and civil and military retirees. The vision was to provide complete services, while focusing on affordability and the ability to provide subsidies. At the start of the initiative, the government promised to build a total of 120,000 housing units beginning with 20,500 units in 2008, and 20,000 annually starting in 2009, with floor areas ranging from 100-160m², with no down payment and 30% deduction from household monthly income, and with minimum fixed interest rate of 5% for thirty years. The annual housing demand was estimated at 45,000 housing units, 66% of which was for low-income household with a monthly income of less than JD 300 [6].

The promised number of produced housing units was above the capacity of any local housing agency. It was substituted to benefit a number of 100,000 households, which makes about 20,000 housing units within five years. In order to deliver such a large number of units within a short period of time, HUDC contracted with local investors from the Jordanian Housing Developing Association (JHDA) to implement the buildings with initial cost of JD265 per square meter and with full infrastructure and site facilities. HUDC managed within three years to establish ten housing projects in five governorates, making 8448 housing units (about 46% of which were sold for the beneficiaries). The sites of the ten projects were selected quickly; some projects were located within cities that were serviced with infrastructure and facilities, while others were out of the urban context and needed to be serviced, like the projects in east Amman and Zarqa [5].

The ten projects of RIH contained 469 residential buildings, consisting of 8448 housing units with 14 prototypes. The buildings ranged from four to seven floors in height, and contained four to 28 housing units each with areas between 90 m²-156 m². Each unit consisted of two to three bedrooms, one living room, a kitchen and two bathrooms and a balcony. About 58% of the units had an area of 100-120m², followed by the area of 90-100m². These areas satisfy the needs of the average Jordanian household of six persons, and at the same time are affordable for the beneficiaries. The RIH was
planned to encourage young couples to benefit from the projects in line with the 30 years loan period. The total number of two-bedrooms housing units was more than the total number of three-bedrooms housing units in most of the projects. The structural system was of concrete column and beams. The walls were made using 10 and 20 cm concrete hollow blocks with coloured plaster for the elevations, and double-glassed windows. Ceramic tiles were used for the floors and bathroom fixtures were provided; elevators were provided only in one project (Abu Alanda), and most of the building materials were locally made [7].

In 1989, the National Housing Strategy in Jordan defined low-income households as those who cannot afford to finance buying a housing unit of 70 m2 with minimum requirements at a market price of 144 JD/m2 without subsidy. HUDC studies showed that 53% of the people could not individually finance buying a housing unit with good standards. In 2010, the pricing of the 8448 built housing units of RIH was based on the assumption of the deduction of 50% of the beneficiaries monthly, which was a high deduction ratio [5]. Low-income can afford to spend only 30% of their total household income on housing, according to World Bank standards [8]. Economic experts and planners attacked the scheme as costly scheme that did not achieve affordability or social sustainability for the target group.

The present research tried to reveal planning, financial, and social gaps in order to explain low selling rates of RIH. Findings can be used as guidance for future and similar initiatives. The objective of the research was to: (1) Evaluate the Royal Initiative for Housing (RIH) as a national affordable housing scheme targeting low-income groups in Jordan. (2) Define the gap between visionary and implemented planning in terms of target group capacity. (3) Explore the potential attributes that affected satisfaction of beneficiaries.

The research setting included the implemented ten projects of RIH in five governorates in Jordan that included Irbid, Zarqa, Amman, Madaba, and Aqaba. The ten projects were distributed as follows: one project (Badr) was located in Irbid in the Northern Region of Jordan. Eight projects were located in the Middle Region: four in Amman (Princess Iman 5, Dyar, Abu Alanda and Mostanada), one in Madaba (Faiha), and three in Zarqa (King Abdullah Bin Abdel Aziz, Batrawi, and Jabal Jabal Tareq); and one project was located in Aqaba in the Southern Region (Shamia).

A mixed method research design was used to test the research questions and hypothesis. Different techniques were used to collect, analyze, and provide a better understanding of the research problem. The first population of the study was residents of the ten RIH projects. The unit of analysis was the beneficiary or the household head. A proportional random sampling of 13% from the number of inhabited units was assigned with a total sample size of 385 subjects. The second population of the study was the non-beneficiaries, who applied for the scheme and did not benefit from it. These were randomly selected, three subjects from each project that reached a total of 30 subjects. The quantitative data was collected through a survey using face-to-face interviews with the beneficiaries of the projects. The qualitative data was collected through telephone interviews with the non-beneficiaries, open-ended questions with the beneficiaries, field observations, and archive research. Two research instruments were used for the data collection: (1) A questionnaire consisting of 65 structured and semi-structured questions used for the field survey, and (2) Seven open-ended questions used for the telephone interviews. The data collection period was cross sectional.

2. Literature Background and Methods of Research

2.1. Literature Background

2.1.1. Housing Selection
People select those environments that are congruent with their psychological and socio-cultural needs [9]. Housing selection is influenced by many attributes: household type, size, stage in life cycle,
structure, social class, education, and current occupation, household head income, norms related to low-income needs for space, neighbourhood location, and housing expenditure. There are six housing norms that act as filters of lifestyle that influence selection: tenure, space, size, person per room ratio, and gender separation [10].

2.1.2. Housing Satisfaction
Satisfaction as an indicator of individual well-being is an important outcome in quality of life [11, 12]. Satisfaction encourages residents to stay and induces others to move in. Low satisfaction urges residents to move out [13, 14]. Satisfaction with neighbourhood features (physical, social, and economic) affects different domains of satisfaction. Specifically, satisfaction with physical features affects both neighbourhood and housing satisfaction. Neighbourhood satisfaction plays a role in community satisfaction, whereas housing satisfaction plays a role in home satisfaction. Both community satisfaction and housing satisfaction play a role in life satisfaction [13, 15, 12, 14].

Physical features include crowding and noise level, lighting, environment quality, and landscape. Social features include social interaction with neighbours, space, ties with people, crime, and home privacy. Economic features include home value in the neighbourhood, living cost, and socio-economic status in the neighbourhood [15].

2.1.3. Attributes of Planning and Design for low-income housing
Gurran [16] found that in many cities of UK, Ireland, USA, and Netherlands land use plays a central role in promoting the supply of affordable housing. In Ireland, there is a requirement that 20% of new residential development areas to include affordable housing [16]. Australian Housing and Urban Research Institute (AHURI) required integrating affordable housing issues into urban planning processes [17].

Site Selection: Barker [2] showed that there is a gap between planning and implementation, not all land allocated for development actually gets developed. New housing can potentially have a positive impact on deprived areas. Miles, et al. [18] concluded that models for urban growth provide developers with a useful framework for understanding a city’s current patterns of land use and indicate future direction of change. Nusair [19] indicated that in Jordan urban growth spread over agricultural land and forests, which led to waste of valuable land because of over regulation of land for residential use.

Housing Unit Design: Rapoport [20] pointed out that house form is not simply the result of physical forces, but is the consequence of a whole range of socio-cultural factors. About 30% of affordable housing for low-income households ignores variations in the size of a family, and it compares only numbers of households at various levels of income [18]. Al-Faqih [2] suggested the need for design guidelines to allow people to express their cultural and socio-psychological attitudes. Al-Homoud et al. [8] concluded that social and cultural values of low-income group made them require more area than they could afford. Al-Asad [21] indicated that building regulations facilitated the establishing apartment buildings in Amman, while single-family house presented a small percentage of built housing that were limited to the rich and higher-income groups.

Financial Issues: Production of affordable housing is still unable to keep up with the growing demand. Housing can be considered affordable for a low or middle-income household if household can acquire a housing unit (owned or rented) for an amount not exceeding 30% of its income [18]. The construction of affordable housing declined because of lack of affordable serviced land and access to housing finance for both developers and homeowners [19, 3]. Land prices and construction costs have reached levels that make them beyond the financial means of many, even those with long-term employment [3].
Infrastructure Issues: Horizontal expansion of housing development led to high cost and lack of equilibrium between service distribution and urban growth direction [2]. Affordable housing can protect children and families to live in dense urban areas. The urban poor need not only housing, but also basic services [22].

Environmental Issues: Al-Faqih [2] stated that the designers should be compatible with the environmental context in which they work, and correspond harmoniously both to the individual’s needs and to collective requirements of the community. A report by UNICEF [22] pointed out urban planning needs to ensure that children can move safely within their environments.

Social Issues: Rapoport [20] suggests that religious, cultural values, spiritual and national characters are considered as symbolic site affects. Land use plans shape how we live together and shape our social relations [17]. Al-Faqih [2] stated that current building regulations makes setbacks very small, which does not provide the needed socio-spatial proximities for the residents.

2.1.4. Jordan Planning and Housing Experience

Ministry of Municipal Affairs (MOMA) is responsible for preparing and developing regional, organizational and construction plans for the municipalities to achieve a well-balanced development. It monitors and controls implementation of regulations, policies, and instructions for municipalities. The organizing plan is considered the base for building policies and strategies for land use. Preparing the organizing plan involves conducting many economic and social studies to decide the actual needs of citizens [23, 24]. Al-Homoud and Al-Oun [25] stated that planning practices in Jordan were top-down; starting from central government, then from local government to citizens. Zaki and Bawaliz [26] indicated lack of coordination among Ministry of Agriculture, GAM, HUDC, and Natural Resources Authority.

Greater Amman Municipality (GAM) Planning Experience: Since 1955, city and government officials developed five plans for the city of Amman, ten years apart: 1955, 1968, 1978, 1988, and 2008. The 1988 Greater Amman Comprehensive Development Plan (GACDP), the greater metropolitan area of Amman included recommendations for satellite communities towards the eastern and southern outer edges of the city, as means to combat the ongoing sprawl to the west to fight inflationary land prices [27]. Ababsa [28] indicated the growth of Amman both in population and in size between 1979 and 2009. The total settlement areas increased from 36 square km to 250 square km over agricultural land. The urban population increased from 777,855 residents to 2.17 million. The largest percentage of population lives in the eastern part of Amman, which hosts neighbourhoods of middle, lower middle class, and poor residents. While the western part of the city house upper and upper middle economic class residents.

Housing and Urban Development Corporation (HUDC) Housing Experience: HUDC aims to provide adequate affordable housing for low and middle-income families to reduce the gap between supply and demand. A three-year (1973-1975) plan included the control of urban growth in outskirts of Amman. The problems that faced housing development in Greater Amman: (1) increased land price in the developed residential areas, which limited the ability of large population of Jordanians to own a house. (2) Expanded residential areas of high-income groups and decreased residential areas of middle income groups. (3) Dispersion of infrastructure and services. (4) Non-equitable distribution of basic services. (5) Lack of small residential units with an area of 150m² that meet the needs and capacity of low-income groups [19]. Al-Faqih [2] indicated that the outcome of HUDC developments is an unbalanced expansion in Amman. Single-family houses built on individual plots were more acceptable by beneficiaries than apartments built by HUDC [2]. Meanwhile, Daher [29] argued that HUDC low-income housing projects in Jordan push the poor out of the city, to deserted locations needing infrastructure and facilities in the eastern edges of Amman especially RIH projects in Jezza.
Abu Alanda and Marka. Ababsa [30] blames HUDC for selecting the RIH project outside the urban centres on the outskirts, leading to the eviction of the poor from cities, making beneficiaries isolated from employment opportunities, schools, urban life, and infrastructure. Further, Jwienat [31] identified housing financing obstacles for HUDC as follows: (1) Incapability to pay; (2) Not reaching the target group; (3) Financing difficulties for housing projects; and (4) The rise in land prices.

2.2. Methods of Research
A mixed methods design was used in the study. The study explored the potential attributes that affected the appropriateness of (RIH) housing scheme for low-income group in Jordan. It investigated the beneficiaries’ selection of the provided RIH projects and their satisfaction. Data was collected from the archives of the Housing and Urban Development Corporation (HUDC), interviews with residents (beneficiaries), and telephone interviews with the non-beneficiaries. A proportional random sampling technique was used to select the subjects, which consisted of 385 household heads who lived in the ten housing projects. In addition, 30 non-beneficiaries were randomly selected from the list of names available at HUDC. The research setting included the ten projects of the Royal Initiative for Housing (RIH) that were implemented in five governorates in Jordan: Irbid, Zarqa, Amman, Madaba, and Aqaba.

2.2.1. The research question and Hypothesis:
The research question: What are the potential issues that may enhance planning for low-income group? The research statements: (1) Statement 1: The real objective of RIH was to provide low-income population in Jordan with affordable serviced housing units. However, low selling rate indicated that this objective was not achieved as planned, noticing a gap between planning intentions and users’ aspirations. (2) Statement 2: Socio-economic and design issues affected the beneficiary’s selection of the project in the scheme. The scheme was out of the reach of the initial target group, and a higher income group seemed to benefit from the scheme.

Based on literature review and the above research statements, there was a major hypothesis for the study: beneficiary housing satisfaction was affected by project location, housing unit design, project design, and by financial, infrastructure, environmental, and social issues.

2.2.2. Variables of the Study
The Dependent Variables: The dependent construct of the study is the appropriateness of the RIH for the low-income group. It is measured by housing satisfaction. Housing Satisfaction is defined by three sub-variables: (1) Satisfaction with the project, (2) Satisfaction with the housing unit, (3) Satisfaction with project selection. It is measured using a five-point Likert scale: (1) strongly disagree to (5) strongly agree, and (6) not applicable.

The Independent Variables: the attributes that may affect the beneficiary’s project selection and satisfaction were: project location, housing unit design, project design, and financial, infrastructure, environmental, and social issues. Some variables were measured based on a five-point Likert scale: (1) strongly disagree to (5) strongly agree, and (6) not applicable; others as continuous and dichotomous variables. Measures were based on the reviewed literature. They were defined as follows:
1. Project location was defined by convenient daily trips to work, schools, health center, commercial services, mosque, and relatives and friends.
2. Housing unit design was defined by room area, interior finishing, natural lighting, natural ventilation, bathroom ventilation, thermal insulation, humidity insulation, housing unit area, number of bedrooms, person’s share of housing unit area, room occupancy, living room, and added facilities.
3. Project design was defined by project density, floor area ratio, clustering, open space, green landscape, and building setbacks.

4. Financial issues were defined by: (1) beneficiary’s financial capacity (household monthly income) and (2) financing obstacles: unit price, purchase type, loan source, loan period, down payment, down payment source, and monthly payments.

5. Infrastructure issues were defined by: water cycle, sewage disposal type, storm water drainage, garbage disposal, garbage containers, local accessibility, external accessibility, street suitability, lighting adequacy, car parking, and security.

6. Environmental issues were defined by: surrounding greenery, noise, dusty winds, factory smoke, and bad odors existence and control.

7. Social issues were defined by: social issues at the project level: privacy perception, social interaction among neighbors and among project residents, homogeneity, and project image. Social characteristics at the personal level: gender, marital status, age of household head, household size, life cycle stage, education level, occupation, and former ownership.

2.2.3. Sampling Technique

Frame of the Inhabited Housing Units: From the marketing department in HUDC, the total number of sold housing units was 3869 or is 46% of the total built units, and the total number of unsold housing units was 4579. The number of inhabited housing units was 2950. Considering the average household size is 5.4 persons according to DoS (2011), the estimated population was 15930 residents in the ten RIH projects.

Sampling Procedures: (1) Beneficiaries: The population of the study was the residents of the ten projects of RIH. The unit of analysis was the household head over 18 years’ old who was available at the housing unit when the survey was conducted. The household selection was conducted systematically in the field. The interviewer knocked on the door, and asked for household head’s permission for interview. If the subject agreed, he was interviewed. If the selected household head was not available at home or refused to be interviewed, or if the housing unit was not inhabited, it was excluded and substituted by the next housing unit selection. Random selection continued until the assigned number of the proportional sample size of 385 was achieved. (2) Non-Beneficiaries: The unit of analysis of the non-beneficiary was the person who applied to HUDC, who either was not qualified or chose not to complete the procedures. A list of non-beneficiaries’ telephone numbers was provided by the marketing department at HUDC. A random sampling technique was used. Every third name from this list was selected for the telephone interview. If the subject agreed to participate, the interview was conducted; otherwise, the next name on the list was selected and called until three subjects from each project approved to participate. The total sample size was 30 subjects out of the total non-beneficiaries.

2.2.4. Data Collection Techniques

Data collection was carried out in the ten projects with the assistance of four social researchers from HUDC, who are experienced in field survey. Assistants were trained to conduct the interviews.

(1) Survey: Data was conducted with the household head at RIH ten projects, using face-to-face interviews. The interviews were conducted in the subject’s guest room or in the garden. The average length of the interview was 10-15 minutes.

(2) Telephone Interviews: Data was conducted with the non-beneficiaries over the phone. Subjects were called and asked to participate in the research. If they approved to participate, they were called, briefed about the research, and the interview was conducted. If they refused, they were thanked. The average length of the telephone interview was 5-15 minutes.
(3) Field Observations and Archive: Data was also collected using field notes and photos during the survey. Field observation described the status-quo of the projects in terms of physical and social issues. Additional data was collected from the archives of HUDC. Documents were reviewed to compare, evaluate, and analyze different issues.

2.2.5. Instruments Design
Two instruments were used for this research: (1) The Questionnaire: The questionnaire included an introduction about the objectives of the study. The instrument consisted of three pages that contained 65 structured and semi-structured questions written in Arabic, in addition to the open-ended. The (2) Telephone Interview Questions: This interview consisted of seven open-ended questions covering three major topics: selection procedures of the project, planning issues related to project selection, and willingness to apply again. (3) Field Observations and Archives: Field notes, observations photos and archive documents were used to document the actual living conditions in the ten RIH projects.

3. Results and discussions

3.1. Analysis - Hypothesis Testing
Factors affecting project and housing satisfaction with the project selection were investigated. Housing satisfaction was calculated based on satisfaction with the housing unit and satisfaction with project selection. The correlation between housing satisfaction and recommendation of the project to relatives and friends was also tested.

3.1.1. Differences in Housing Satisfaction Based on Satisfaction with the Housing Unit and Satisfaction with Project Selection
One-way ANOVA test was carried out to test the differences in the means of housing satisfaction with satisfaction with the housing unit and satisfaction with project selection. Results were presented in Tables (1) and (2).

| Table 1. Means of Housing Satisfaction by Satisfaction with the Housing Unit and Satisfaction with Project Selection |
|---|---|---|---|
| variables | N | Mean | Std. Deviation | Std. Error |
| Satisfaction with the housing unit | | | | |
| Strongly disagree | 3 | 1.00 | 0.00 | 0.00 |
| Disagree | 73 | 2.47 | 0.87 | 0.10 |
| Not sure | 20 | 3.10 | 0.97 | 0.22 |
| Agree | 240 | 3.68 | 0.80 | 0.05 |
| Strongly agree | 48 | 4.21 | 1.03 | 0.15 |
| Total | 384 | 3.46 | 1.03 | 0.05 |
| Satisfaction with project selection | | | | |
| Strongly disagree | 13 | 1.69 | 0.95 | 0.26 |
| Disagree | 71 | 2.39 | 0.87 | 0.10 |
| Not sure | 55 | 3.35 | 0.97 | 0.13 |
| Agree | 196 | 3.80 | 0.66 | 0.05 |
| Strongly agree | 45 | 4.36 | 0.74 | 0.11 |
| Total | 380 | 3.46 | 1.03 | 0.05 |

The test indicated a significant effect of satisfaction with housing unit and satisfaction with project selection on housing satisfaction. However, the effect of satisfaction with project selection [F (4,375) = 75.3], P < 0.05 was higher than the effect of satisfaction with the housing unit [F (4,379) = 45.38], P < 0.05. Most of the sample agreed on satisfaction with housing unit and with housing selection. This indicates a positive effect, Table (2).
Table 2. Effect of Satisfaction with Housing Unit and Satisfaction with Project selection on Housing Satisfaction

| Variables                     | Sum of Squares | df | Mean Square | F    | Sig  |
|-------------------------------|----------------|----|-------------|------|------|
| Satisfaction with housing unit|                |    |             |      |      |
| Between Groups                | 131.3          | 4  | 32.8        | 45.38| 0.000|
| Within Groups                 | 274.2          | 379| 0.7         |      |      |
| Total                         | 405.5          | 383|             |      |      |
| Satisfaction with project selection |          |    |             |      |      |
| Between Groups                | 180.2          | 4  | 45.0        | 75.30| 0.000|
| Within Groups                 | 224.3          | 375| 0.6         |      |      |
| Total                         | 404.5          | 379|             |      |      |

3.1.2. Correlation between Housing Satisfaction and Recommendation of the Project to Relatives and Friends

To test if there was a correlation between housing satisfaction and recommendation of the project to relatives and friends, a Pearson correlation was carried out. Results indicated a significant but moderate association between housing satisfaction and recommendation of the project to relatives and friends, Pearson correlation = 0.581, Table (3), which may indicate that subjects were hesitant, and potentially, if they have a choice, they may not repeat the experience though they seem satisfied.

Table 3. Correlation between Housing Satisfaction and Recommendation of the Project to Relatives and Friends

| Satisfaction with the project | Recommendation of the project to relatives and friends | Pearson correlation | Sig  |
|-------------------------------|------------------------------------------------------|---------------------|------|
|                               |                                                      | 0.581               | 0.000|

3.2. Raised Issues and Discussion

Discussing the research question: What are the potential issues that may enhance planning for low-income group?

The beneficiary’s satisfaction was not based on financial issues. The outcomes of the study and the strong relationships between the research variables with housing satisfaction indicated that planners should take into consideration the following variables that affected the beneficiary’s housing satisfaction:

(1) Project location: convenient daily trip included that to work, school, health centre, commercial services, mosque, relatives, and friends. These trips should be reached on foot if within the project, or there should be suitable transportation means if they were outside of the project. Once residents move and live in the project, they begin to explore the shortest links between housing unit and daily needs, in order to save energy, time, and money. If users can achieve that, they will be satisfied with their housing unit and project. Badr, King Abdullah Bin Abdel Aziz, Abu Alanda, Princess Iman 5, and Shamia Projects were built out of the city. The remaining projects of Batrawii, Jabal Tareq, Mostanada, Dyar, and Faiha were located within the urban context, and surrounded by residential neighbourhoods.

(2) The Housing unit design: including room area, interior finishing, natural lighting natural ventilation, bathroom ventilation, thermal insulation, humidity insulation, added storage, and added garage. Issues like beneficiary’s housing satisfaction, humidity insulation, added storage, and added garage did not have a strong relationship with housing satisfaction. Housing unit areas were larger with better interior and exterior finishing, bright colours, double glazed windows for thermal and sound insulation, and natural room lighting and ventilation; elevators were provided in one project, Abu Alanda; added storage room and extra living room were provided when needed; and surrounding walls for the plot were installed.

(3) Project design: including clustering of buildings and setbacks. HUDC has its own regulations and zoning criteria that are applied in all housing projects, while indicating the maximum built up area, which reached 55-60% of the plot area in some projects. Maximum built up area reached 45% of the plot area, maximum allowable height and floor number was 3-4 floors, and the minimum setbacks
between the building and the plot walls was usually 2.5-3 meters. Unfortunately, green areas in HUDC projects are small and do not exceed 5% of the project area; they are not well attended, because they must be registered by the name of GAM or the municipality in order to be attended. Open spaces and green landscape affected users' housing satisfaction. Open spaces between buildings offer residents more perceived privacy and less perceived crowdedness.

(4) Infrastructure Issues: including water cycle, sewage disposal type, and garbage containers number. These variables affected satisfaction due to residents' daily needs for water, sewage, and hygiene, and their need to reduce the cost of buying extra water tanks. Subjects also demanded their sewage to be connected to the public sewage network or to the wastewater treatment plant in the project in order to save the expenses of weekly septic tank draining. Road design attributes including external accessibility, local accessibility, street suitability, and project street maintenance affected both the project selection and housing satisfaction. Streets are major connectors, and subjects want to access their housing unit using paved and well-designed street and footpath. Car parking had a weak one with housing satisfaction. Beneficiaries wanted to make sure that the car parking area is available when they select their project, but when they move in they seem to adapt to what is available. HUDC regulations and zoning criteria applied in all housing projects indicate that one car parking should be provided for every three housing units and a common parking area should be provided. Due to the increase in car ownership and to the remote project locations, these criteria must be reconsidered. Lighting variable including project lighting (pathways), project lighting (building entrance), and project lighting (street) affected satisfaction. They provided easier movement and suitable walking conditions especially at night, besides safety and security by reducing theft and crimes in the projects.

(5) Environmental Issues: including surrounding greenery, dusty winds existence and control, factory smoke and bad odours existence and control, and noise control. Surrounding greenery, factory smoke, and bad odours affected satisfaction. People prefer to live in a green location, although the seven RIH projects were located in deserted areas with no greenery in the surroundings, hot dry climate, and dusty winds. Unfortunately, HUDC did not take any measures like planting trees around the project, or in the planned green areas or on the inner streets. Some residents planted trees and flowers in their small gardens and on the sidewalks. There were bad odours from the wastewater treatment plants in four RIH projects: Mostanada, Abu Alanda, Princess Iman 5, and Badr.

(6) Social Issues include privacy feeling, which was strongly related with adequate setbacks between buildings. These variables have strong relationship with housing satisfaction. Social interaction between neighbours was related to satisfaction, as people like to know their neighbours through visits, offering help, and sharing things.

4. Conclusions
The implemented RIH plan suffered from certain planning limitations, including: targeting a high number of housing units to be built annually, projects locations, and provision and operation of immediately needed infrastructure and services. Financial limitations included underestimating the changing needs and capacity of the target group, housing unit price, monthly payments, and bank loan terms. Social limitations included beneficiaries feeling isolated and neglected in remote locations.

The pricing of the housing units of RIH in 2010 was based on the previously mentioned definition, with some modifications on the household monthly income and interest rates. According to HUDC marketing department, 3869 from among 8448 built housing units were sold up to 2013, making about 46% of the total number of the built units.

The general findings of the study are:
- The RIH vision was to provide low-income population with affordable serviced housing units.
- The implemented planning by HUDC to achieve this vision suffered from some planning and financial problems.
The beneficiary's decision to select from the offered alternatives and housing satisfaction were affected by different attributes such as project location, housing unit design, project design, and financial, infrastructure, environmental, and social issues.

This research might be the first scientific attempt to evaluate the on-going RIH by focusing on actual beneficiaries in the ten projects. It is hoped that it may help in understanding the real conditions and attributes which affected the Royal Initiative for Housing (RIH).

4.1. Strong relationships
It appears clearly that project location variables (convenient trip to the mosque, health center, commercial services, school, relatives and friends, and convenient trip to work) have a strong relationship with housing satisfaction. Housing unit design variables (interior finishing, natural ventilation, room area, thermal insulation, bathroom ventilation, natural lighting, and number of bedrooms) have strong relationship with housing satisfaction. It appears clearly that project design variables (building setbacks and clustering) have strong relationship with housing satisfaction. Also infrastructure variables (lighting at pathways, water cycle, garbage containers, local accessibility, lighting adequacy at building entrances, security, street suitability, project lighting adequacy at streets, and sewage disposal type) have strong relationship with housing satisfaction. Environmental variables (factory smoke and bad odours and surrounding greenery) have a strong relationship with housing satisfaction. Moreover, social variables (privacy perception, project image reflection of social status, homogeneity among project residents) also have a strong relationship with housing satisfaction.

4.2. Weak relationships
Housing unit design variables (humidity insulation housing unit area, person’s share of housing unit area, room occupancy, separate living room, added garden, added garage, added veranda, and added storage room) have a weak relationship with housing satisfaction. Project design variables (open space and green landscape), infrastructure variables (storm water drainage, garbage disposal, and car parking), and environmental variables: (noise existence, noise control, dusty winds, dust control, and factory smoke and bad odours control) have a weak relationship with housing satisfaction.

These findings also indicate the importance of providing and operating the infrastructure facilities and services for new development projects. The answer is not by building new residential buildings, but by building a complete working project those suit residents' needs.

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