On the Integration of Value Engineering in the Procurement of Public Housing in the State of Kuwait

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<td>ALMO</td>
<td>Arm's Length Management Organisation</td>
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<tr>
<td>CABE</td>
<td>Commission for Architecture and the Built Environment</td>
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<tr>
<td>CBK</td>
<td>Central Bank of Kuwait</td>
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<td>CCT</td>
<td>Compulsory Competitive Tendering</td>
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<td>Kuwait Export Crude</td>
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<tr>
<td>KOC</td>
<td>Kuwait Oil Company</td>
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<tr>
<td>KPC</td>
<td>Kuwaiti Petroleum Corporation</td>
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<tr>
<td>MNCs</td>
<td>Multi-National Corporations</td>
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<tr>
<td>OPEC</td>
<td>Organization of Petroleum-Exporting Countries</td>
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<tr>
<td>PAHW</td>
<td>Public Authority of Housing Welfare</td>
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<tr>
<td>PFI</td>
<td>Private Finance Investment</td>
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<tr>
<td>PPG</td>
<td>Planning Policy Guidance</td>
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<tr>
<td>PSA</td>
<td>Public Service Agreement</td>
</tr>
<tr>
<td>REDeSS</td>
<td>Re-organisation, Expansion, Disposal, Refurbishment and maintenance, Safety and Security</td>
</tr>
<tr>
<td>RSL</td>
<td>Registered social landlord</td>
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<tr>
<td>SAVE</td>
<td>Society of American Value Engineers</td>
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<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>TQM</td>
<td>Total Quality Management</td>
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<td>VA</td>
<td>Value Analysis</td>
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<td>VE</td>
<td>Value Engineering</td>
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<td>VM</td>
<td>Value Methodology / Value Management</td>
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<td>WWF</td>
<td>Worldwide Fund for Nature</td>
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Currency Converter from XE (22-12-2011)

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<tr>
<th>The State</th>
<th>USD - United States Dollars</th>
<th>GBP - United Kingdom Pounds</th>
<th>JOD - Jordan Dinars</th>
<th>SAR - Saudi Arabia Riyals</th>
</tr>
</thead>
<tbody>
<tr>
<td>KWD – Kuwaiti Dinars</td>
<td>1 KWD = 3.59 USD</td>
<td>1 KWD = 2.31 GBP</td>
<td>1 KWD = 2.54 JOD</td>
<td>1 KWD = 13.45 SAR</td>
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</tbody>
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The University of Manchester
Talal Alazemi
PhD, 2011

On the Integration of Value Engineering in the Procurement of Public Housing in the State of Kuwait

Abstract
The Kuwaiti government is responsible for ensuring the adequate housing of all Kuwaiti families. In the United Kingdom and many other countries in continental Europe, the government provides affordable housing only to those who are deemed by the state to be disadvantaged or in financial need. In Kuwait, all citizens, irrespective of financial status, must register the Public Authority for Housing Welfare (PAHW), the government agency with operational responsibility for housing. It provides a range of housing options including “plots and mortgage”, “flats”, and “readymade” (i.e. pre-fabricated) government housing. To meet the increasing demand for housing in the state, the Kuwaiti government is planning to create six new modern cities with the capacity to accommodate more than 125,000 residential units.

In order for the Kuwaiti government to address the challenge of meeting its citizens’ housing needs, a sophisticated management system will be required. This thesis proposes that Value Engineering (VE), a proven management approach that uses systematic techniques to identify the best options that balance the costs, reliability, and performance of a product, should form part of that system whilst the implementation and practice of VE within construction projects appears to have substantive merits, this research examine, in particular, how the VE Job Plan may be used as part of a wider Value Management framework to aid housing allocation problems in Kuwait. Whilst this research is positioned within a Kuwaiti context, the emergent issues may also be relevant to a wide number of other social housing providers.

Data collection was carried out using a mixed methods approach spanning four phases. The first phase used a quantitative survey of Fahad Al-Ahmad City residents; self-administered questionnaires designed with closed-ended options were distributed and received through personal delivery. The second phase used the findings of the first phase in qualitative face-to-face interviews with these residents. The third and fourth phases involved face-to-face personal interviews with PAHW representatives. The cumulative findings provided understanding of the problems that citizens and PAHW face in selecting appropriate housing solutions. These findings were shared with an expert panel group in Kuwait, and their feedback is discussed.

The findings indicate that the major problems that citizens of Kuwait face with government “readymade” houses result from the length and quality of the allocation process. Citizens have to wait 10-15 years from application before taking occupation of a property, consequently, occupants immediately embark on modifications to the property. Through the implementation of bespoke VE Job Plan, citizens’ involvement in the housing design is encouraged at an earlier stage than what would otherwise be the case. It is hypothesised that satisfaction levels will increase whilst the costs incurred by government and citizens as a consequence of reconfiguration will be reduced, leading to improved value for money.
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ACKNOWLEDGEMENT

The work Presented in this thesis was carried out at Manchester University during the years 2007-2011. I express my gratitude to my supervisors Dr Taha Elhag, Dr. Richard Kirkham and Mr David J Ling for providing guidance and pushing me forward during my research.

I deeply and sincerely appreciate the prayers of my parents, my wife and other family members, including my six children, during the period of this study.
CHAPTER 1: INTRODUCTION
1.1: INTRODUCTION

The Kuwaiti Government has ultimate responsibility for the housing of families within the state. Each family has the legal right to register with the Public Authority for Housing Welfare (PAHW), the government agency that oversees the provision of housing and associated welfare. Legislative mechanisms have been enacted to ensure appropriate standards of housing for all Kuwaiti families; irrespective of their financial status. A political will supported by a strong economy have been key drivers in supporting a population of over 1,000,000 people.

A range of housing options exist within the PAHW portfolio, designed to meet the needs of the indigenous population, but invariably, the idiosyncratic nature of each family is such that these buildings often require some form of modification or remodelling to meet families’ requirements. At present, PAHW offers three types of housing options: plot and mortgage, flats, and ‘readymade houses’. Concrete frame houses may be an additional choice (PAHW, 2006). PAHW believed that since most people were dissatisfied with the type of fittings used in the houses, concrete frame houses would be a successful alternative. But, from empirical study, it was found that the concrete framework has not been successful and has been discontinued.

The absence of a systematic role for end-user participation in the various phases of the project lifecycle exposes organisations to technical, material, and time problems during the commissioning/handover stage. The benefits of Value Engineering as ‘an organized, collective effort to push the project to achieve its objectives and proper use of its resources in order to reach

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1Readymade houses are houses ready to move into built by the government. Each one has an area of 400 m² (PAHW, 2007a).
the best requirements expected by the beneficiaries provides ample illustration of the benefits that such an approach can deliver as a means of reducing post-handover complications.

It should be recognized however that many successful infrastructure projects including those in neighboring countries such as Saudi Arabia, have delivered successfully with little end-user input. The research here suggests though that VE may offer a genuine opportunity to increase the quality of social in the context and that further empirical studies will be required in order to validate this. This research will look in more detail at the VE Job Plan and how it may be used to overcome some of the problems within Kuwaiti housing projects.

To quantify the functional and economic effectiveness of housing (and buildings in general), the tools and techniques underpinning Value Management are potentially valuable. Value Management provides a broad framework for understanding the functional performance of buildings and can facilitate a holistic understanding of building performance beyond the conventional time, cost and quality metrics.

The research described in this thesis articulates a framework for Value Engineering improvement in Kuwaiti housing provision. Based on the Value Engineering Job Plan method, the framework is comprised of two stages: the pre-workshop/study (Stage I) and the Value Job Plan (Stage II). To do this, questionnaires were designed with the help of information collected from various literature articles, journals, books, conferences, and reports, and data were collected from residents and PAHW representatives. The features and importance of each stage will be discussed in later chapters. Figure 1.1 provides an overview of the structure of Chapter 1.
1.1.1: The Development of Value Engineering

The first applications of Value Engineering (VE) emerged from the U.S. manufacturing sector during the mid-to-late 1940s (Zimmerman and Hart, 1982). This was followed by the construction sector during the early 1970s (Dell’Isola, 1982); the industry was keen to adopt methods that would provide a broader framework in which value outcomes from projects could be quantified. Subsequently, this technique became increasingly common in Europe, particularly the United Kingdom, where the Value Engineering Association was established in 1966 (Kelly et al., 2007). Norton and McElligott (1995) highlight how this led to a wider appreciation of technology and other through-life cost analysis methods in evaluation of construction projects. During the same time period, VE began to gain traction in Australia and Japan, with evidence of applications in China by 1978 (Alalshikh et al., 2008). Within the Arabian construction sector, evidence of VE only began to emerge in the mid-1980s (SGVE, 2007), although researchers argue that, at present, it is still rarely applied in southeast Asia and Gulf states (Cheah and Ting, 2005; Shublaq, 2008).
Lawrence D. Miles is widely recognized as one of the early advocates of VE; he pioneered its use within the General Electric Company (GE) as a response to a need for a set of techniques that could be used to ensure that changes within a project should occur intentionally rather than by chance (i.e. that decisions made to change the scope of a project were based on a rationale rather than purely by intuition or subjective judgment). In 1959, the Society of American Value Engineers (SAVE) proposed a VE framework in order to ‘standardise’ the application of the guiding principles, but not surprisingly a wide variance in the application of the methods and interpretation of the framework rapidly emerged. In the UK, there has been some debate surrounding the use of the terms ‘value engineering’ and ‘value management’ (i.e. whether a fundamental difference exists between them or not). This issue is elegantly explained by the decision of the Value Engineering Association to change its title to the Institute of Value Management. Kelly et al. (2007) argue that the term ‘Value Management’, rather than ‘Value Engineering’, should be used to integrate all of the components related to the project, rather than focusing principally on the engineering components (Kelly et al., 2007). In the United States, SAVE International has opted to use the term ‘Value Methodology’ as all-inclusive. Value Methodology is thus defined as a structured, disciplined procedure aimed at enhancing the value of a project. SAVE (2007) refers to the procedure used to enact the methodology as a ‘Job Plan’; that procedure involves 3 stages, see Figure 2.5:

- Pre-workshop/Study stage
- Workshop/Study stage (Value Job Plan)
- Post-workshop/Study stage
To illustrate the syntactic debate further still, SAVE International (2007) suggest that the term ‘value methodology’ is also commonly applied as a substitute for ‘value analysis’ (VA), ‘value engineering’ (VE), and ‘value management’ (VM). SAVE (2007) states that these terms can be used interchangeably with ‘value methodology’. Value methodology can be used in a wide variety of applications, including industrial or consumer products, construction projects, manufacturing processes, business procedures, services, and business plans. In turn, Kelly et al. (2007) confirm that ‘value methodology’ is the term generally used in the United States for ‘value management’.

The discussion above implies that little emphasis has been placed on the impact of the different terminologies used, and that there thus appears to be no appropriate rationale for the divergence of terminology/taxonomy. There are two main approaches in value study thinking: the first is that of SAVE International and its affiliates, and it describes function analysis as the foundation of the VM process; the second is that of Europe and Australia/New Zealand, and it views VM as a management style. There is no right or wrong approach for value study; the differences in culture, situation and thought cause this variety (Alalshikh et al., 2008). More details about the two main approaches are discussed in Chapter 2. This presents methodological challenges for the research described in this work given that the main aims are to explore how the ‘Job Plan’ used by SAVE International may be enacted by Kuwait’s PAHW to potentially improve the level of the citizens’ satisfaction with the design and quality of government housing provision.
The Gulf Context

During a SAVE conference in 1998, the Gulf Chapter was inaugurated. The aim of the Chapter was to provide an opportunity for engineers, architects, managers, administrators, and other built environment professionals to gain knowledge and understanding of the value engineering (VE) principles and applications within an Arab context. In facilitating the Gulf Chapter of SAVE International, a key strategic driver was the need for ‘a focused approach to promoting value engineering applications within Arabian Gulf countries and improving the quality of projects through optimization and utilization of all costs and resources’ (SGVE, 2008).

Presently, Kuwait is a member of the Gulf Chapter of SAVE International, and consequently the Job Plan of SAVE would be used (partially) to support the delivery of housing provision within PAHW. VE is not currently being used in PAHW; therefore, even after the decision by the government to implement VE within PAHW, users need to be trained to understand the usage and importance of VE. It was widely believed that doing so would lead to improving the delivery of government houses and increase occupant satisfaction (SAVE, 2009). The motivation for such activities is well illustrated by experience within the wider Arab context, where a number of outcomes have emerged (particularly in Saudi Arabia):

- The Saudi government mandated VE applications on all government projects that cost more than $5 million. Other Gulf countries are expected to follow.
- All government contracts and many private sector contracts now include VE clauses.
- Four Arabic VE books have been written by Gulf CVSs.
- The number of certified people in the Gulf has reached around 1,000 (CVSs and AVSs), and continues to increase.
- VE training workshops (Modules 1 & 2) are held at the rate of 40-50 per year.
- VE studies are conducted at the rate of 80-100 per year.
• Four regional VE conferences have been held (2001, 2003, 2005 & 2008), and planning is underway for the fifth in 2011 (Al-Sayid, 2008).

It can be seen from above that the development of VE within Saudi Arabia particularly has been rapid; value engineering is now key to government projects, and increasingly so in the private sector too (Al-Sayid, 2008). In spite of this perceived success, value engineering has failed to command similar levels of interest in Kuwait. Whilst it is difficult to discern why this is the case, one could point to an apparent lack of vision or recognition of the strategic benefits of the approach or the absence of incentives or policy demands (applicants and non-applicants are the same). This is reflected in the current situation in the Ministry of Finance (and indeed other Kuwaiti government authorities) where the application of VE principles has been sparse (Shublaq, 2008).

Within social housing policies that are followed in the UK, Jordan and Saudi Arabia, focus is on the low-income people and those who cannot construct or purchase their own houses. Given the evidence from Saudi Arabia, this thesis will seek to appreciate the potential challenges to more widespread adoption in Kuwait and seek to identify the idiosyncratic features that may present obstacles to successful integration within the core activities of PAHW.

1.1.2: Current Housing Situation in Kuwait

There are more than 88,000 families on the waiting list for housing in Kuwait (PAHW, 2011); the response from the Kuwaiti government has been to initiate the planning of six new modern cities, containing more than 125,000 residential units, in order to meet the increasing demand for housing. Whilst the proposals should help elevate the current ‘crisis’ with regard to capacity,
their to be concerns that the fitness for purpose and occupant satisfaction of individual dwellings has not been satisfactorily addressed within the plans. Al-Khiaiat et al. (2005) highlight how families continue to make modifications to dwellings immediately upon occupation, both inside and outside the property. Money is wasted in three ways. First, the government spends money building these houses, and they are destroyed by the end-users immediately after they receive them. Second, the end-users spend money to remove the fittings. Third, the end-users spend money to buy new fittings and fixtures.

To date, the Kuwaiti government has already built 72,000 residential units, and now it is planning to build additional residential units totalling almost 1.74 times that number. Therefore, the yearly average of distributed houses will increase from 1,500 to 12,500 (PAHW, 2006). This is a significant programme of work, thus the challenge is to deliver the new housing with quality and cost for purpose fully considered and implemented. The latter consideration strikes right at the heart of the VE proposition – how can PAWH ensure that it houses families in dwellings that meet their short- and long-term residential needs?

1.2: SIGNIFICANCE OF THIS RESEARCH

It is pertinent to add, at this point, that the literature on value (whether it be Value Engineering, Value Management or Value Methodology) is rich and varied. This diversity is made evident in the following literature review chapters; however, this complexity of knowledge has created difficulties for practitioners in implementing such methods effectively, particularly in Kuwait. Whilst it surpasses the scope of this study to explore the policy landscape in significant depth,
this work does highlight the strategic considerations of value engineering in housing provision (both within Kuwait and internationally).

On a more detailed level, this work sets out to propose a new framework in which Value Engineering (VE) concepts may be enacted within the PAHW of Kuwait. The idiosyncratic nature of the country, culture and economic/political landscape presents numerous challenges to successful VE implementation, challenges that have not been readily identified in the contemporary literature. Thus, a key contribution of this work is to provide evidence of the relevance and challenge of VE implementation within Kuwait and, moreover, to consider the macro and micro organizational factors that will impact the reform of existing housing provision across PAHW. Furthermore, the research seeks to uncover the answers to one key question – why is it that existing housing designs are subject to significant post-handover alteration?

Al-Khaiat et al. (2005) illustrate the magnitude of this problem; they refer to a perception by occupiers that existing designs are largely unsatisfactory and that it is common practice for the occupants to make various interior and exterior modifications immediately after assignment. Sometimes, the renovations are so extensive that structural damage may occur. Such practices are clearly at variance with wider views on sustainability, lean construction and waste minimisation. Given the scale and magnitude of housing development proposals with PAHW, this research is significant and timely.

From a field survey conducted by Al-Khaiat et al. (2005) and this research, changes such as partial additions to external walls, building annexure, electrical works, replacing entrance doors,
aluminium works, removing internal walls and plumbing works can be observed to be common changes being carried out upon immediately receiving the houses.

The underlying hypothesis of this research is that the housing provision programme in Kuwait could be markedly improved through a more comprehensive application of the existing contemporary literature on value management. The thesis will present evidence to suggest that the current arrangements are unsatisfactory and that improvements to the job plan (and, in particular, the interface with key stakeholders) could yield significant benefits for occupiers and the state.

As described earlier in this first chapter, the Value Job Plan has three stages that are comprised of a number of interdependent phases. Evidence obtained during the study identified the inadequacies in the existing application of this plan with respect to end-user engagement/consultation. A key recommendation is thus a requirement in the process for PAHW to identify pre-qualified recipients of government houses and actively engage with them during the appropriate VE job plan phases. Three key areas where this interface occurs are the pre-workshop activities, the information phase, and the presentation phase. The activities involved in these phases are described below.

**Stage 1: Pre-workshop/study**

Evidence obtained during the course of the research suggests that problems exist regarding the matching of applicants for housing with availability capacity. Since this is the first phase of the process, the foremost requirement is identifying qualified customers from the waiting list. As stated earlier, people have to register in PAHW in order to be on the waiting list. PAHW can use the registration dates to identify who is entitled to receive the housing options; this means that
those who registered in 1999 will have a better chance than those who registered in 2000. Based on the number of units available in the new city, the total number of qualified customers who can be assigned a house can be identified.

Once the quantum of demand has been established, the research then recommends that PAHW distribute a questionnaire to gather the basic demographical data on these particular housing applicants. This knowledge should provide PAHW with a general understanding of the factors leading to the current problems associated with post-occupancy change.

The information emerging from this stage should provide a platform for PAHW to interact with contractors in designing appropriate engagement strategies with occupiers. Based on the information collected, the research recommends that contractors provide virtual/scale models of designs that may be inspected and understood by occupiers. These models will be presented by the contractors themselves in the next phase, which provides personal interaction between the contractors and the occupiers. PAHW will provide a timeframe to the private contractors for the development of their unique designs based on customer preferences.

**Stage 2: Workshop/study (Value Job Plan)**

**Information phase:**

The primary objective of this phase is to reinforce the participation of the occupants and promote their interaction with the PAHW and the private contractors.

Private contractors will develop their designs and present them to the occupants. By using design representations in both virtual and scale model formats, the problems associated with the usual presentation of design information to ‘laypeople’ should be overcome. Through
cooperation with Kuwait University and Kuwait Society Engineering, PAHW will holding training courses to convey technical design information to those who are not experienced in using/reading engineering drawings. Based on these models, the customers will interact with the private contractors and provide their feedback and opinions to PAHW.

It is expected that PAHW can then utilise the feedback generated from the occupants to refine the design of dwellings. This is the first filtration; occupiers will review these designs then discuss with their family and see which of these designs can achieve their requirements. This information will be provided to the respective departments and will be incorporated in the function analysis phase, creative phase, evaluation phase, development phase, and presentation phase of the VE Job Plan. In the presentation phase, further customer interactions with PAHW will be required.

*Presentation phase:*

This is the final phase of interaction between the customers and the PAHW. The interaction is based on the models that the customers have selected and on the feedback they have provided concerning design. In this final stage, multiple iterations may be necessary to determine which design features would lead to end-user satisfaction.

The PAHW will revise the designs based on the customers’ input and present the revised designs for evaluation. In situations where the requested modifications result in costs that exceed the budget for the construction of the government-supplied readymade houses, the PAHW will choose either to work with the customers to resolve the financial issue or discard the modifications. In both cases, the PAHW will explain its decision and rationale for the decision
to the customers. In the case of finance sharing, the customers will be asked to provide the additional money required to complete the houses according to their requirements. In situations where modifications are too extensive in terms of both time and cost, customers will be presented with options including the choice of a plot. If further changes are requested by customers on the newly revised model, then the PAHW must consider the additional changes and interact with the customers concerning the latest model. These steps must be followed until an agreement has been reached between the customers and the PAHW.

Once a final agreement has been reached, the customer will be asked to sign a contract of understanding that no major changes will be made to the government readymade house once it is issued to the customer. Customers’ requirements concerning their houses can change over time, and the customers must be informed that any major changes to the house can be done only after a stipulated period of time and after obtaining the prior consent of PAHW in writing. Customers who select plots are free to build their houses to meet their own needs by selecting a contractor of their choice.

These proposed measures using VE techniques constitute the hypothesis of this research: to help resolve the stated housing provision problems and to minimize the need for customers to make major changes to the houses immediately after receiving them. These goals can be accomplished only if PAHW implements a program that results in houses that satisfy the customers’ needs and expectations.

Through empirical investigation, the author proposes the implementation of VE with a focus on the Job Plan with the objective of improving the current scenario and creating an improved, cost-
effective, and satisfactory scenario. If this is done, customers will not be allowed to make any major renovations to their houses after accepting the assignment. In fact, there should be no need for such renovations, since the houses will have been built according to a design that was agreed upon by the intended recipient, who is part of the project team committed to building better homes.

The implication of this research concerning Kuwaiti housing policy is that it will result in the provision of better and satisfactory houses to the Kuwaiti community. By implementing the author’s suggestion that the PAHW involve its customers in Stage 1 (Pre-workshop/study phase) and Stage 2 (Workshop/Study Value Job Plan), the PAHW will learn what the customers’ expectations are, and the houses can be designed and built accordingly. Additional costs that exceed the budget of PAHW can be retrieved from the end-user, since these are special requirements.

1.3: RESEARCH AIM AND OBJECTIVES

The primary aim of the research is to develop a framework based on Value Engineering principles (including the Job Plan) to improve the existing approaches to housing provision and procurement in Kuwait with the intention to satisfy the main stakeholders, including end-users, occupants and the State.

In order to fulfil this aim, the following research objectives have been established:

- To evaluate the size of the problem and the extent to which it concerns the public
- To identify and analyse the changes carried out by residents in the houses provided by the PAHW
- To identify and assess the main causes of the changes conducted in the provided houses
• To evaluate the PAHW’s degree of awareness of the problems associated with the provision of housing and the measures needed to overcome these problems
• To identify the requirements and needs of potential residents and to assess how these requirements are addressed and met by the houses provided by PAHW.
• To develop a VE framework and job plan to facilitate an effective and satisfactory housing provision process by the PAHW.

1.4: RESEARCH QUESTIONS

The following questions are used as a guide for the research strategy and methodology.

1 What is the Kuwaiti public’s level of satisfaction with the houses provided by PAHW?
2 What measures have been taken by the PAHW to ensure the provision of good homes for Kuwaiti nationals?
3 What are the reasons behind the government’s modification of houses?
4 What can Value Engineering contribute towards PAHW’s aspirations to provide good quality outcomes?
5 How can the suggested Job Plan allow PAHW’s customers to become members of its project team, and how can this improve the present situation?

1.5: METHODOLOGY

The research described in this thesis is underpinned by a mixed methodology approach. This philosophy is widely utilised in situations where data used as part of the study emerges from a range of qualitative and quantitative sources (Saunders et al., 2003). Collation of primary data used within the study occurred at four stages and was governed by the University of Manchester procedures on research ethics. Additional information was gathered from the literature available in academic libraries and on the Internet, including articles, theses, books, publications, reports, and market studies.
The basis of the study is the development of housing at the Fahad Al-Ahmad City in Kuwait. The initial survey used a blend of quantitative and qualitative methods (at stages one and two). The third and fourth phases of data collection were focused on structured qualitative data collection through interviews with middle and higher management within PAHW. This is discussed in greater detail later in this chapter.

1.5.1: Literature Review

The literature review explores contemporary theory and discourse on Value Management, Value Engineering, and Value Methodology, particularly within the construction industry context. Whilst the focus of this study is on the design and implementation of an improved VE approach to Kuwaiti Housing provision, the literature review takes a critical lens to the provision of ‘social housing’ in the UK and Jordan to provide a useful benchmark. This review highlights a fundamental difference in policy; the UK and Jordanian systems of housing provision (in a social context) are centred on low-income individual/families or those with health issues that require support from the state. However, in Kuwait, the delivery model is fundamentally different since the government provides housing for the entire population (simply due to the fact that the state is the sole proprietor of the land). Therefore, in Kuwait, it is quite easy to establish why demand for PAHW services is so significant. PAHW currently provides three housing options: plots, ‘readymade’ houses, and flats. These options are discussed extensively in the literature review section.

General information on Kuwait’s geography, climate, culture, and economy, all of which play important roles in determining housing requirements – are explored in the literature review. The role of the PAHW is highlighted because this is the primary government agency responsible for meeting the housing needs of Kuwaiti citizens.
1.5.1.1 Relevant Doctoral Research

In order to position this research within contemporary research work, the following theses have been identified and salient aspects highlighted:

1. The Influence of Socio-Economic changes on housing design in Kuwait (Al-Sanafi, 2001)

This research was conducted in Kuwait and is based on changes in traditional houses. Based on structural diagrams and pictures of traditional houses in the 1960s, the author, Al-Sanafi (2001), discusses the changes that have been observed over the years. The houses in Kuwait developed speedily, especially after the discovery of oil. Kuwait and neighbouring gulf countries came into the international spotlight especially after oil was discovered in abundance.

Therefore, according to Al-Sanafi (2001), the demand for large houses stemmed mainly from the socio-economic expansion in the country. This led to the modernization of Kuwait, and with this came the need for further changes even in the housing.

With oil demand growing and oil prices rising, the country is becoming richer and its economy stronger. This upward boom in economy has also had a positive impact on its nationals in terms of the type of job they choose, the monthly income they receive, government support in financial aid (especially in building houses), and a better quality of life. The relationship of this study to the current research is on the housing growing demands. The PAHW is responsible for assigning government readymade houses; however, the houses that the government provides do not seem to satisfy the citizens.
2. Using Value Management to improve sustainability in construction (Abidin, 2005)

This research focuses the use of VM in construction, especially in the early stages, towards promoting sustainability and facilitating critical decision making processes. VM looks at how the entire construction process, from inception to completion, can be carried out in the shortest period of time, providing the best results and keeping costs as low as possible. According to Abidin (2005), the term ‘sustainability’ is seldom used in VM; instead, it focuses on providing quality outcomes by minimizing wastage, promoting efficient environment control, keeping costs low and ensuring customer satisfaction. The final result is customer satisfaction, which means that, from the beginning, the customer needs have to be understood so that the right product can be delivered.

In the context of the current research, it is recommended that the Kuwaiti government adopt Value Methodology, which is very similar to VM, for the improvement of its readymade housing. This would prevent PAHW from making sacrifices in cost with respect to materials and fittings that are used in construction of the houses. Nevertheless, PAHW has been unable to achieve customer satisfaction. Adopting Value Methodology based on SAVE International’s recommended standards may not help PAHW to attain customer satisfaction, in order to satisfy customer in housing projects in Kuwait, PAHW has to gather the requirements of each potential customer from the waiting list to provide houses that are accepted by its designs. Adding customer participation during pre-workshop, information phase, and presentation phase of Value Methodology job plan is recommended in order to remedy the current problem of dissatisfaction.
3. Applying Value Management to Public Service Sector with a View to Best Value (Hunter, 2006)

This research by Hunter (2006) focuses on VM and Best Value in the UK public service sector. According to Hunter (2006), VM is widely used in the manufacturing and construction sectors in UK, but its use in the public service sector is limited. The application and usage of VM is expected to help the UK public sector to achieve Best Value. According to Higgins et al. (2004), the Best Value outcomes include “responsiveness to users, staff morale, allocation of resources, service quality, service efficiency, service effectiveness, accountability to the public, accountability to the members, relations with in-house unions, staff pay and conditions, and job satisfaction” (Hunter, 2006, p. 10).

Based on this idea, the current research is similar to Hunter’s (2006) as the concept of Best Value can be used by PAHW towards providing the right services to the citizens. Best Value focuses on those internal factors through which high service quality can be maintained and provided. The focus of Hunter’s (2006) research is on public sector services in general and not specifically on the housing sector.


This research by Hunt (2005) focuses on housing management and the usage of Best Value. The discussion of Best Value here in housing management aims to improve the entire range of activities with a particular focus on performance, quality, accountability and cost. Hunt (2005) stresses the application of these variables within the council housing management policies.
The focus of Hunt (2005) is towards the policy and procedures that need to be changed according to the best value objectives. To put this into the context of the current research, simply adopting VE and involving citizens in the process is not going to be adequate. The policies and procedures that are followed by PAHW from the design phase to distribution phase of government readymade housing have to be reworked so as to incorporate the VE process.

In addition to Hunt (2005), many other studies related to VE, best value, and social housing have been discussed in the literature. The recommendations of these studies were to involve end-users during the design phase. In all of these studies, the focus of the government is towards social housing and affordable housing. Both social and affordable housing are targeted at citizens who cannot afford to construct or purchase their own houses.

The major factor that should be highlighted here is that, in Kuwait, the government is responsible for housing all of its citizens, irrespective of income, social status, or any other criteria; there are more than 88,000 in the waiting list, so, the Kuwaiti government should begin identifying which customers/end-users are to be allotted housing in the new city, then the right end-users can be involved. Therefore, compared to other studies, this is a unique situation.

1.5.2: Case Study Design

The information gathered and discussed in the literature was used to design the case study. Fahad Al-Ahmad City was chosen for the empirical case study because it had a good combination of plots and government houses (1,000 government readymade houses and 1,000 plots) in addition to being a new city. Data were gathered from the homeowners who chose plots and government-supplied, readymade houses.
1.5.3: Data Collection and Analysis

The collection of empirical data was conducted during all four stages, and it included mixed methods. Figure 1.4 provides an outlay of the four phases.

**Figure 1.2: Data Collection Phases**

The first phase included a survey using the quantitative method. Multiple-choice questionnaires were hand delivered to residents of Fahad Al-Ahmad City and then collected. From a total of 200 questionnaires have been distributed, 104 quantitative responses were received. Of the 104 responses, 58 were received from people who had selected government readymade houses, and 46 were received from people who had selected plots and constructed their own houses. Many of the residents declined to take part in the survey because they had made changes to their new houses and, due to the sensitivity of this issue, did not want to disclose the types of modifications they had made or their reasons for making them.

The second phase included a qualitative method through which the residents who took part in the survey were interviewed in person, based on the quantitative analysis of the data gathered during the first phase. The third and fourth phases included conducting personal interviews with PAHW managers and select employees from various departments. The initial data gathering was done from middle managers, engineers, and housing design personnel in the various departments of PAHW. The final phase of data collection focused on gathering data from some of the senior
managers. Data collection in each of these phases was based on the results gathered from the previous phases.

The sampling approach used is simple random sampling. This type of sampling eliminates bias and is particularly useful when the sample size is very large. It also useful when the requirements are clear and systematic and stratified techniques are used. Therefore, the survey and interview respondents were selected based on simple random sampling.

1.5.4: Research Design Guideline

In this study, data gathered through the questionnaires and interviews provided an understanding of the homeowners’ level of satisfaction and need for a VE Job Plan that included the careful identification and participation of end-users.

The results that were gathered were discussed with a group of 10 professionals in the field of housing construction who have expertise in construction, value engineering, and citizens’ needs related to government-supplied readymade houses. This was done to ensure the validity and reliability of the data and the conclusions drawn from the analysis of the data. Their input indicated that they agree with the findings from this research that actual end-users of the government-supplied readymade houses must be identified and included in the design and presentation phases of the VE Job Plan to ensure a higher level of end-user satisfaction with the houses. Figure 1.5 shows the research methodology layout.
RESEARCH METHODOLOGY

LITERATURE REVIEW
- VALUE ENGINEERING
- KUWAIT HOUSING
- INTERNATIONAL PERSPECTIVE ON SOCIAL HOUSING

EMPIRICAL STUDY
- Phase I: Survey with Residents of Fahad Alahmad City
- Phase II: Interview with Residents of Fahad Alahmad City
- Phase III: 1st Interview with PAHW Representatives
- Phase VI: 2nd Interview with PAHW Representatives

Preliminary Conclusion and VE Framework

Validation

Conclusion and Recommendations

Figure 1.3: Research Methodology Structure
1.6: ORGANIZATION OF THESIS

The thesis is structured into seven chapters, as discussed below. Figure 1.6 provides the thesis layout.

**Figure 1.4: Thesis Structure**

The next chapter will beings with the discussion on value engineering followed by value management and value methodology. The chapter also provides the understanding into the term
value within construction sector in the beginning of the chapter. Various case studies using Value Management and Value Methodology in construction and housing sector have also been provided in this chapter.
CHAPTER 2: VALUE ENGINEERING
2.1: INTRODUCTION

The concept of value engineering was developed by Lawrence Miles, a major defence contractor for General Electric, which during the 1940s encountered a scarcity of the strategic materials required to manufacture its products for World War II. Miles understood that, if value and the related innovation improvements were “managed” systematically, then General Electric would gain a competitive advantage in the marketplace. With this goal in mind, Miles took up the challenge, created the concept of function analysis, and incorporated it into an innovative process that came to be known as value engineering. Miles knew that products were purchased because of their utility to the company, i.e. for what they can do, and that these products either serve a physical function or provide agreeable aesthetic qualities.

Value engineering is not a system to reduce costs, because reducing costs comes through fast and easy measures taken during a project that deviate from the original plan or eliminate some of its components regardless of the disorder in performance and quality that might result.

This chapter discusses the importance of VE within social housing, case studies from UK, Saudi Arabia, and UAE using Value Management and Value Methodology in construction and housing sector have been provided. This chapter looks in more detail at the SAVE international job plan and how it may be used to overcome some of the housing problems in Kuwait. Figure 2.1 shows the structure of Chapter Two.
2.2: VALUE

Prior to discussing VE, it is important to understand the meaning of ‘value’. Based on the definition by Shillito and De Marle (1992), human actions are motivated and driven by value; when humans need something, value acts as the potential objective. It has also been pointed out that value is the primary driving force between supply and demand (Ashworth and Hogg, 2000).

As Kelly et al. (2007) stated, “Value is a measure expressed in currency, effort or exchange or on a comparative scale which reflects the desire to obtain or retain an item, service or ideal. In many texts the relationship of value to function and cost is represented by the expression:

\[
\text{Value} = \frac{\text{Function}}{\text{Cost}},
\]

Where Function: is characteristic activity or action for which a thing is specifically fitted or used or for which something exists. Cost: is the price paid or to be paid. It is often said that one man’s price is other man’s cost.”
Value, as defined by the Society of American Value Engineers (SAVE), is the fair return or an equivalent in goods, services, or, sometimes, even money for something exchanged. Quite commonly, value is represented by the relationship Value \approx \text{Function/Resources}, where Function is measured by the customer’s performance requirements, and Resources are measured in terms of the materials, labour, price, or time required to accomplish that Function (SAVE, 2007). According to the Institute of Value Management (IVM), the concept of Value relies on the relationship between the satisfaction of many differing needs and the resources used to do so (VIM, 2007), as shown in Figure 2.2.

\[ \text{Value} = \frac{\text{Satisfaction of Needs}}{\text{Use of Resources}} \]

\[ \text{What is necessary for a desired user} \quad \text{Everything that is required to satisfy needs} \]

**Figure 2.2: Value Concept (Source: (IVM, 2007))**

According to SGVE (2007), the main objective of value studies is to improve the value. Since value means getting the highest quality with the lowest possible costs:

\[ \text{Value} = \frac{\text{Function} + \text{Quality}}{\text{Cost}} \]

Similarly, engineers and economists see value in terms of the features of a service or product, where value engineering and value analysis are formal methodologies for the improvement of value, and define ‘value’ as the ratio of function to cost (Shillito and Marle, 1992).

**2.3: VALUE ENGINEERING**

The Value Engineering (VE) concept is not new. Its origination dates back to World War II, and it has been applied in the construction field since the late 1960s or early 70s. Lawrence Miles formally developed the concept Value Engineering concept (Zimmerman and Hart, 1982).
As Miles (1989) explained, a Value Engineering system includes the parts, approaches, and actions necessary to achieve improved solutions to problems. Many of these approaches are organised into a job plan. The strength of their effectiveness stems from the “information step,” during which as much information is collected as possible. Full knowledge of the situation "to be addressed" facilitates the creation of new ideas.

In North America, Leeuw (2001) believed, the private sector has not accepted “Value Engineering” as much as the public sector. A major reason for this could be that VE has tended to concentrate on functionality and cost only, instead of functionality, cost, and return on investment, with the latter factor being of significant importance to any commercial developer. Other countries, however, including Australia, Japan, and the United Kingdom, have welcomed VM.

2.3.1: Evolution of VE

After Miles developed the concept of value analysis, other companies quickly became aware of Miles’ success, as did the U.S. Navy. Thus, value analysis began to gain in popularity, leading a group of practitioners to form a learning society to share insights and achieve progress in their innovative capabilities. As a result, the “Society of American Value Engineers” was officially formed in 1959, and soon the tool of VE was put to use with the aim of improving value in government projects, the private sector, manufacturing, and the construction industry. VE is now used in the United States, the rest of North America, South America, Europe, Australia, Asia, the Middle East, and parts of Africa. Due to this international growth, the membership of SAVE decided to change its name in 1996 to “SAVE International” to better represent its new status. Some of the significant milestones in VE (Table 2.1) were discussed by Humphreys (2003).
### Table 2.1: VE Milestones

<table>
<thead>
<tr>
<th>Time</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>World War II</td>
<td>At General Electric, substitutions for critical materials dictated by shortages resulted in products that accomplished their function at reduced cost.</td>
</tr>
<tr>
<td>1947</td>
<td>Mr. Lawrence D. Miles, General Electric Staff Engineer, was assigned to the purchasing division to study a new proprietary concept, where he succeeded in developing an amazing new package of techniques he named “value analysis” (VA) to make the cost saving coincidence of WWII occur purposefully.</td>
</tr>
<tr>
<td>1952</td>
<td>Mr. Miles conducted the first VA workshop seminar.</td>
</tr>
<tr>
<td>1954</td>
<td>The U.S. Navy’s Bureau of Ships applied VA to cost avoidance during design, calling it ‘Value Engineering’. The Navy was the first governmental organization to use this new technique.</td>
</tr>
<tr>
<td>1958</td>
<td>Mr. Miles was awarded the U.S. Navy's highest civilian honor, the Navy Distinguished Public Service Award, for his assistance to the Bureau of Ships in VE.</td>
</tr>
<tr>
<td>1959</td>
<td>The Society of American Value Engineers (SAVE) was founded in Washington, D.C., to unite all practitioners and promote the growth of the profession.</td>
</tr>
<tr>
<td>1960s</td>
<td>Mr. Charles Bytheway developed a diagramming tool used during VE analysis called the ‘function analysis technique’ (FAST), which can identify, classify, and denote the functions upon which the team should focus. This diagramming technique is useful for building teamwork and achieving a consensus from a team on a problem and identifying potential areas for improvement.</td>
</tr>
<tr>
<td>1962</td>
<td>In December, the Department of Defence announced that it was making VE a prerequisite for all DoD contracts over $100,000.</td>
</tr>
<tr>
<td>1964</td>
<td>The U.S. Army Corps of Engineers initiated its VE program.</td>
</tr>
<tr>
<td>1965</td>
<td>A Japanese delegation visited SAVE for assistance with problems, marking the start of Japan’s VE programs.</td>
</tr>
<tr>
<td>1970</td>
<td>The U.S. Congress endorses VE by recommending its use on federally aided highway projects.</td>
</tr>
<tr>
<td>1972</td>
<td>The Veterans Administration (VA) joined the VE group.</td>
</tr>
<tr>
<td>1973</td>
<td>SAVE established a program for the certification of value specialists.</td>
</tr>
<tr>
<td>1974</td>
<td>In April, the use of certified value specialists for value work in General Services Administration (GSA) construction projects became a requirement. The Federal Highway Administration (FHWA) established an office to administer the VE program on federal-aid projects.</td>
</tr>
<tr>
<td>1975</td>
<td>The U.S. Department of Transportation’s (DOT’s) Federal Highway Administration (FHWA) awarded a contract to a private firm to conduct its national training program “Value Engineering for Highways.”</td>
</tr>
<tr>
<td>1976</td>
<td>The Florida Department of Transportation established a VE Program, realizing the benefits from VE. Other states established programs.</td>
</tr>
<tr>
<td>1982</td>
<td>The Department of Defense (DoD) established its honorary VE award programs.</td>
</tr>
<tr>
<td>1993</td>
<td>The Office of Management and Budget (OMB) issued a circular calling for government-wide use of Value Engineering.</td>
</tr>
<tr>
<td>1997</td>
<td>FHWA expanded the rule by publishing the 23 CFR Part 627 requiring VE analysis on all federal-aid highway projects on the national highway system with an estimated cost of more than $25 million.</td>
</tr>
</tbody>
</table>

(Source: Humphreys, 2003)
The Value Engineering Association was established in 1966 in the United Kingdom, and, in 1972, was renamed the Institute of Value Management (IVM) (Kelly et al., 2007). Value Management was introduced in Japan and Australia in the 1960s and in China in 1978 during the reform and open door policy (Alalshikh, 2008). The next section discusses the use of VM in the United Kingdom and other countries.

2.4: VALUE MANAGEMENT

“Value management (VM) is presented as a methodological management style for enhancing value in projects. It draws together conceptual thinking on the project as a value chain with historical and international developments in value management and value engineering (VE)” (Male et al., 2007)

The early development of value management (VM) can be attributed to North American thinking. During the late 1960s and into the 1970s, VM diversified mainly through the manufacturing sector into various countries, including Japan, Italy, Australia, and Canada (Dell’Isola, 1988). Beginning in the 1980s and continuing into the 1990s, a turning point occurred for VM in terms of its use in international construction projects. Different perspectives and approaches emerged internationally with some countries, such as Japan and Korea, using a franchised version of VM from the U.S. methodology, whereas other countries began to use the methodology and later utilised it to track their national markets and cultures. For example, Eric Adam (1993) of Australia still had close ties with the North American perspective, whereas Roy Barton at the University of Canberra, as a result of his study tour to North America, became an active supporter of contextualization in Australia (Male et al., 2007).
Leeuw (2001) provided the following description of VM:

- VM is basically an instrument, which enhances the functional value of a project by handling the process from the initial concept to completion and commissioning through the audit (examination) of all the decisions taken against a value system set by the owner/developer.
- VM, being an organised approach, provides the necessary functions at the lowest possible cost.
- The direct straight exclusion of an enhancement is not VM. Instead, the VM procedure considers that an enhancement could have some kind of a value be it a functional value or even an aesthetic value. The mere avoiding of such an enhancement could end up in a stereotyped development with probably only functionality but no aesthetic appeal.
- VM is an organised approach meant for the identification and discarding of unwanted cost. This unnecessary or unwanted cost does not provide use, nor life, nor quality, nor appearance, nor customer features to a development.
- VM is, indeed, a systematic, multi-disciplinary effort aimed at understanding the functions of projects with the intention of achieving the most optimum value at the lowest overall life cycle project cost. (Leeuw, 2001)

2.4.1: VM European Standard

VM was defined by the European Standard for Value Management as a technique of management, taking into consideration its progress from value analysis of products during the 1940s to that of services, projects, and administrative procedures. This standard also states that, concurrently, other methods and management techniques existed that also were based on the tools of value and function, such as Design-to-Cost and Functional Performance Specifications. The European Standard indicated that value management has the goal of reconciling the different views of stakeholders and internal and external customers in regard to what constitutes value (Fong, 2004).
2.4.2: The Australian-New Zealand Standard

The Australian-New Zealand Standard for value management defined it as a structured, systematic, and analytical process seeking to achieve value for money by providing, as much as possible, every function that is required at the minimum total cost, while remaining consistent with adequate levels of quality and performance. The VM process, as recognised by this standard, is focused on a participatory workshop comprised of a multi-disciplinary, representative group of people working hand-in-hand to achieve the best value solution for a particular situation.

The Standard identifies three vital success factors in the VM process: 1) The methodology employed, 2) the commitment of those involved, and 3) the way in which the total process is facilitated and managed. The definition has been modified in the new draft Standard DR 04443 (Standards Australia 2004), pointing out that the VM process is a structured and analytical group effort that attempts to establish and improve value and, where needed, value for money in products, processes, services, organizations, and systems. In this standard, it was also evident that there is a close alliance between value-for-money and the more traditional applications of value analysis and value engineering in such activities as the design, procurement, operation, and disposal of entities. The VM study process centres on a participatory multi-disciplinary workshop. According to DR 04443, there are five essential elements in the VM process: 1) the prescribed study process, 2) commitment of those involved, 3) management of the process, 4) executive commitment, and 5) effective facilitation. The term “work plan” was used by the new draft Standard instead of “job plan,” which was originally used by Miles (1989) and adopted in the ANZ 1994 version.
2.4.3: UK Standard

Over the past two decades, in the United Kingdom, there has been growth in the development and practice of VM at differing intervention points across a wide range of construction project types and in organizational situations. It was during the same period that risk management came about, more closely allied with VM as a complementary service. The constant progress in value management seemed to have reached a plateau, and, since it is still being organised, there are visible signs that development is becoming increasingly stagnant.

This statement was confirmed by Fong (2004) through a recent survey of U.S. and U.K. practitioners. A random sampling was done of U.S. practitioners from SAVE International (N = 85) and U.K. practitioners in the Institute for Value Management (N = 24). The main governing sectors for its application from the survey were construction (22%), manufacturing (12%), transportation (11%), management (11%), government (10%), and systems and services (9%). Through this sample, Fong found that, while VM has a theoretical base that is not driven by practice alone (77%), it seems to be lacking a professional image (79%) and seems to be in decay (85%). Its ambiguous image is the main reason given for its decline (30%). The key reasons given for the use of the methodology include cost reduction (24%), performance improvement (14%), and auditing (11%).

Cheah and Ting (2005) added VM after gaining further insights from a sample of experienced managers attending an international VM/VE training course (N = 54). The use of VM/VE in construction was supported by 68%, whereas the most probable causes of its limited application in Southeast Asia include the absence of support from those in authority (61%), inflexibility in
contractual provisions (61%), and poor understanding of the methodology (59%). In relationship to this, there is a basic opinion that it is just a cost-cutting tool and that a close link exists between the use of the term ‘value’ in VM/VE and its utility in allied management techniques such as Total Quality Management (TQM).

The main obstacle noted was the lack of time to implement VM/VE on projects (65%), but significant obstacles on the list also included conflicts of interest (48%), lack of communication among stakeholders (43%), and a divided/segmented project decision-making process (39%). Apparently, the last three are crucial reasons for taking up VM/VE as a more integrative process (Fong, 2004).

As can be seen from this brief review of standards and empirical evidence, a difference of opinion clearly exists on an international basis regarding the correct definition of ‘value management’. However, there is a close alliance between the British/European Standard and the Australian-New Zealand Standard. The former recognizes VM as a management style that has important similarities with other management approaches, whereas the latter focuses on its wider organizational use and the workshop component. Yet, both handle the issue of getting the stakeholders and/or multidisciplinary teams to address value, quality and performance in all components of a project.

**2.4.4: VM for Construction**

‘VM’ is the European name given to a service concerned with providing the product or service demanded by a customer at the required quality and at the optimum cost. Miles’ observations in 1940s led him to propose the system called ‘Value Analysis’, which was defined as an organised
approach to the identification and eradication of unnecessary costs that do not improve use, life, quality, appearance, or even customer features of the company’s products. Since that time, VM has been used extensively in the construction industry worldwide. This took the form of setting out rules, creating the boundaries of the discipline, pointing out its objectives, defining relevant terminology, adoption and implementation of the practice by government authorities, altering contracts to include a value engineering service clause, the founding of professional societies, the practice of benchmarking, academic research, and publications (Kelly and Male, 1992; Pasquire and Pasquire, 2001).

The potential benefits of VM are extensive (Hunter, 2006). VM is expected to enhance decision making in business, improve communication, foster teamwork, increase effectiveness, deliver better products and services, create a better competitive environment, create a culture that connects everyone, and yield results for stakeholders. Therefore, the purposes of VM can be outlined as follows (OGC, 2003):

- Strategic Assessment: to identify stakeholder needs and priorities
- Business Justification: to review options
- Procurement Strategy: to review options in more detail relative to the project brief and develop output specifications
- Investment Decision: to review selection and award criteria
- Readiness for service: to review whole life costs and ‘build ability’
- Benefits Evaluation: to review lessons learned (cited in Hunter, 2006)

2.4.5: Case Studies

2.4.5.1: Case Study I: Low-income housing projects in the United Arab Emirates (UAE)

In 2006, a study by Abdellatif and Othman aiming to improve the sustainability of low-income housing projects in the city of Musaffah, Abu Dhabi, United Arab Emirates, declared that more
than 70% of the customers who were interviewed were dissatisfied with their finished buildings for a number of reasons, including the following:

- The design firm did not care about their clients’ requirements, and its employees behaved indifferently when design decisions had to be made on behalf of their clients.
- The design firm raised the building specifications to increase the design fees, since these fees are also a percentage of the building cost. To accomplish this, design firms specify luxury materials that are inappropriate for low-income housing projects, and they include utilities, such as central gas systems, that are out of line with the economic status of the users who cannot afford the purchase price or the maintenance costs.
- The entire lifecycle of the project was not considered. The upper water tanks, for example, were made from supportable materials, and their exposure to weather, humidity, and sunlight led to the development of cracks and leaks, and connections wore off. While the lifetime of the project was expected to be about 25 years, these tanks had to be replaced after only three years of use.
- Many defects in construction adversely affected the performance of their buildings due to the weak workmanship of the construction companies’ employees.

All clients that were contacted revealed that they had not been involved in the briefing and structuring process; furthermore, because they had been excluded, their individual requirements had not been requested or incorporated in the design. For example, when the size of their
families increased, they were forced to utilize even the service rooms for living space and the public areas, such as the corridors and roof, as storage. The architects argued that this could be due to the nature of the government and housing projects, i.e., the end-user is usually absent or unaware during the structuring and briefing phases.

According to Othman (2008), the suggestions listed below have been made to improve customer satisfaction. Instructions were sent to government authorities, design firms, and the professional parties responsible for developing housing projects for the poor, emphasizing that more emphasis should be placed on constructing sustainable, affordable housing projects in which user satisfaction is achieved by:

- Adopting and sustaining the policy of customer satisfaction by getting clients and users involved in the briefing and design process.
- Providing a strong role for customer advisors who can help customers by taking into consideration their requirements, understanding their habits and traditions, and obtaining their feedback in order to avoid mistakes and deficiencies in future projects.
- Including the concepts of VM when developing housing projects for the poor. This helps in attaining a better understanding of the customers’ needs, eliminating unnecessary costs, reducing the time required to complete the project, improving communications and teamwork, creating new and challenging ideas, and effectively managing change orders.
- Placing more emphasis on alternative materials and methods that could enhance performance, and simultaneously reducing cost and making sure that the architects are aware of such materials and methods. This focuses on the value of investing in research and development as well as training and encouraging architects to strive for self-improvement and continual educational advancement.

2.4.5.2: Case Study II: Muir Housing Estate

As a case study, Kelly et al. (2007) provided detailed information on the Muir Housing Estate, which was built between 1965 and 1971 on the northern outskirts of the district. Originally, the
Estate was a little less than one square mile in area and housed 50,000 people in a mixture of high-rise and four-storey maisonettes with several clusters of old people's bungalows. Currently, the Estate is an area of high unemployment with many examples of social deprivation. There have been a number of initiatives by the Council to alleviate the problems of the Estate, including an innovative storey reduction program for converting many of the four-storey maisonettes on the perimeter of the Estate to attractive two-storey houses and three-storey apartments. Subsequently, tenants purchased many of these. Currently, there are approximately 40,000 people living in the accommodations that the Council rented on the Estate. The objective of the project was to provide an area community office to accommodate employees of the Council, representing the Departments of Housing, Social Work, and Youth and Community Work. The office is expected to offer local residents an opportunity to pay their rent, give notice that maintenance is required, and discuss social matters.

**Stages:**

Based on the information available, a value management study at the elemental level was considered to be the most appropriate. The focus was to ascertain the function of the elements and to determine whether those functions can be provided in a more cost-effective manner without adversely affecting time or quality.

*Element function stage 1: Information*

The first action taken was to analyse the costs and compare them to benchmark projects. Comparison with similar projects helped to identify costs that were higher than their benchmarked counterparts.
Element function stage 2: Brainstorming, evaluation and development

In this stage, ideas were compared in terms of their advantages and disadvantages on various levels.

Element function - Holistic approach stage 1: Information

This stage focused on identifying primary functions of a number of elements that appear not to be providing value for money. The team was able to identify that large sums of money were being spent on three main functions: the protection of staff cars, secure money, and secure materials.

Element function stage 2: Brainstorming, Evaluation and Development

The functions of protection of staff cars, secure money, and secure materials were considered in turn by the team, and alternatives are noted. An exercise to examine the advantages and disadvantages was undertaken after brainstorming. The resulting decisions were to (1) provide a single- or two-storey building with a courtyard or external fenced parking and CCTV and (2) to investigate just-in-time deliveries by the builder's merchants.

Value Management Stage 1: Pre-workshop information

In this stage, interviews, document analysis, walkthroughs of similar facilities, and issue analysis were identified as appropriate actions.

Value Management Stage 2: Pre-workshop team, agenda and location

The agenda for the workshop was determined by referring to the standard form for a pre-brief and briefing study. The workshop was well equipped and capable of accommodating a large number of people, making it adequate for the workshop team.
**Value Management Stage 3: Workshop**

Activities in the workshop included issue analysis; identification of the client value system (utilised to obtain ordinal measurement in the form of a ranking of client's values); discussion of the importance of the issues analysed, timelines, and project drivers; expanding upon issues; REDeSS (Re-organisation, Expansion, Disposal, Refurbishment and maintenance, Safety and security); time, cost and quality, function diagrams; goal and systems modelling; workshop review; user analysis; user space analysis; drafting an adjacency matrix; brainstorming; and creating an action plan.

**Conclusion**

The case study of Muir Housing Estate using VM provided three different ways:

1. As a value engineering study that preserves the design as presented and looks to element functions to drive the search for innovative solutions in order to provide the function at the required quality and lowest cost.
2. As a value engineering study but with emphasis on space, recognizing that a reactive search for innovative space solutions may result in radical changes to the design.
3. As a value management study in which the mission or primary function of the whole project is sought and innovative solutions developed with the aim of providing the client with the solution that provides the best value for the money.

**2.5: VALUE METHODOLOGY MODEL**

The process of value methodology (VM) is the systematic use of recognised tools and techniques by a multidisciplinary team to recognize and allocate the functions of a project and to form, select, and construct alternative approaches to deliver in a cost-effective manner the functions and/or improve performance. VM is used in a logical process referred to as the “Value Methodology Job Plan” or “VM Job Plan.” The aim of this job plan is to help the study team in
identify and focus on major project functions in a systematic manner and form new ideas that will bring about value improvements. Value can be defined here as the relative worth, use, or importance of the project to a user. Basically, the VM Job Plan is comprised of the following sequential phases: Pre-VM Workshop Study Phase, Information Phase, Function Analysis Phase, Creative Phase, Evaluation Phase, Development Phase, Presentation Phase, Implementation Phase and Post-VM Workshop Phase (SAVE, 2005).

Value methodology is the systematic usage of accepted techniques that recognizes the functions of the project, learns how the functions affect cost and performance, meets with the user's wants and needs, and identifies different ways to conduct major functions in order to improve project value.

2.5.1: SAVE International

The term ‘value methodology’ (VM) is used by the SAVE International Standard, which emphasises that VM comprises the tools of value analysis, value engineering, value management, value control, value improvement, and value assurance (SAVE, 2007).

This Standard indicates a generic methodology, common terminology, and standard practices that act as a guide to practitioners and managers whereby to effectively apply VM for enhancing the value of their projects. By means of this Standard, it is possible to know when in a project’s life VM must be applied to increase the benefits of the team’s innovation skills and maximize the use of alternatives that add value to the project (SAVE, 1998).

The value methodology is, in fact, a collection of techniques assembled to direct a team through a structured job plan, with the aim of enhancing value. The standard VM Job Plan is structured in
order to escort a team to the point where it realizes the project’s fundamental, aims and functions (SAVE, 2005).

2.5.2: VM Job Plan

The Value Standard was drafted in May 1997. Since then, it has been updated periodically to keep up with changes in technology and the business environment and to prepare for future integration with the International Standards Organization. The Value Standard is expected to provide a practical guide whereby practitioners and management can apply the principles of the value methodology in a consistent manner (SAVE, 2007).

In practice, value methodology is commonly referred to as ‘Value Analysis’ (VA), ‘Value Engineering’ (VE), and ‘Value Management’ (VM), and it can be applied to a wide variety of applications, including industrial or consumer products, construction projects, manufacturing processes, business procedures, services, and business plans (SAVE, 2007).

The formal application of a value methodology to a project aiming at improving its value is called ‘value study’, but it goes by many names including ‘value engineering’, ‘value analysis’, ‘value planning’, and ‘value management’. When it comes to the utility of this standard, the subject of a value study, whether it is a product, process, procedure, design, or service, will be referred to as the ‘project’. (SAVE, 2007)

The job plan provides the structure for the value study, which is part of a three-stage process (Fig. 2.3):

1. Pre-workshop preparation
2. Value workshop, which applies the six-phase job plan
3. Post-workshop documentation and implementation
2.5.2.1: Pre-Workshop Activities
The purpose of this stage is to plan and organize the value study. To prepare for a value study, one must accomplish the following:

- Achieve senior management concurrence with and support of the job plan, roles, and responsibilities
- Enhance the scope and objectives for the value study
- Derive project data and information
- Obtain vital documents, such as the range of work definition, drawings, specifications, reports, and project estimates
- Understand the scope and objectives of the study and form a study schedule
- Undertake competitive benchmarking analyses
- Recognize Value Team members
- Attain commitment from select team members to achieve the project objectives
- Revise project costs
- Collect required customer/user information about the project
- Obtain participation of suppliers, customers, or stakeholders in the value study, if needed
• Allocate information to team members for review
• Create informational models/diagrams about the project and establish study dates, times, locations, and other logical needs
• Reveal to senior management the requirements for successful value study results

*Typical Outcome:*

What is required from this stage is a clear understanding of what senior management needs to have addressed, what the strategic priorities are, and how organizational value will increase with improvement. Only at this point is it possible to know whether subsequent phases will yield sufficient value to equate the cost of the study within the set terms. It would be proper to adjust the study parameters at this time. Team members have the knowledge and are committed to achieving the project’s objectives (SAVE, 2007).

*2.5.2.2: Workshop (Job Plan) Activities*

The systematic process known as the ‘value methodology’ follows the job plan. It is applied by a multi-disciplinary team to enhance the value of a project through the analysis of functions. The job plan consists of the sequential phases mentioned below (SAVE, 2007).

*Phase 1: Information*

The related team examines, identifies, and states the current conditions of the project and identifies as well as the goals of the study. This is done to analyse the current state of the project and limitations that affect project decisions, and the team’s basic question is:

• What is really going on in the tactical and operational contexts?
The voice-of-customer tool is used in the Information phase (SAVE, 2007). Kamara et al. (2002) indicated that the voice of the customer is used in the manufacturing sector to describe the systematic and active process of identifying the true wishes of customers. Similarly, the voice-of-the-client tool includes all requirements of the various components of the client body in the construction project (Kamara et al., 2002). According to Kamara et al. (2002), the client requirements should be well processed in order to:

- Record the complexities inside the client body through the recognition, resolution, and incorporation of the different viewpoints within the client body;
- Make the client’s objectives and expectations clear; and
- Translate the client’s requirements to design and construction solutions that satisfy the client’s objectives.

Phase 2: Function Analysis

The team used a two-word active verb/measurable noun context to define the project functions. The team visualised these functions to determine which of them need improvement, elimination, or even creation to meet the project’s goals (SAVE, 2007).

Here, the aim is to understand the project from a functional perspective, i.e. what the must project do, rather than how the project is currently conceived, and so the main question is:

- What are the functions and how are they related?

The Function Analysis System Technique (FAST) tool is used for testing the function in the Function analysis phase (SAVE, 2007).
**Phase 3: Creative**

The team employs creative techniques to identify other ways to perform the project’s function(s). The purpose of this step is to generate a quantity of ideas related to alternative ways to perform functions, and there is the underlying question:

- How else may the functions be performed?

This phase features the use of brainstorming and Gordon Technique tools (SAVE, 2007).

**Phase 4: Evaluation**

A structured evaluation process is used to identify those ideas that offer scope for value improvement while delivering the project’s function(s), understanding performance requirements, and understanding resource limits. Here, the intention is to sift through this group of new ideas and select just those with the greatest potential to improve the project, and the basic question for this phase is (SAVE, 2007):

- Of all these ideas, which are worth spending quality time to develop further?

**Phase 5: Development**

Selected ideas are developed into alternatives (or proposals) with adequate levels of documentation to determine if the alternatives are to be used. Here, the purpose is to analyse further and develop those with merit into value alternatives, and the basic questions are:

- What is an informed description of each selected idea?
- What is the basis for this change?
- Which of these are mutually exclusive and independent?
The selected ideas are then transformed clearly into value alternatives so that the owner and other project stakeholders may understand the intent and benefits of the alternative. Any potential negative factors associated with the alternative can be noted through studies. Alternatives would have text, sketches, diagrams, assumptions, supporting calculations, vendor information, cost comparison worksheets, and other relevant information to help convey the intent of the alternative. Other alternatives should also be assessed, which may be enhanced or matched by the use of an alternative. Reliability, customer convenience, quality control, lifecycle cost, schedule, risk, availability, political ramifications, and perception are some of the issues addressed. An action plan is drawn up for each alternative delineating what needs to be done, who will do it, and when it will be completed (SAVE, 2007).

*Phase 6: Presentation*

The team leader develops a report and/or presentation that documents and conveys the adequacy of the alternative(s) developed by the team as well as the associated value improvement opportunity. The purpose of this stage is to present value alternatives to the management team and other project stakeholders and decision makers, and the basic question is (SAVE, 2007):

- How can the project team and senior managers be assisted to make more informed decisions when selecting the ideas that best fit their strategic plans?

*2.5.2.3: Post-Workshop Activities*

*Implementation Activities*

This step ensures that accepted value alternatives are implemented and that the benefits projected by the value study have been realised. Here, the fundamental question is:
What are the program changes, and how can they be handled by the project team?

The proper value alternatives, how they will take place, and the schedule for their completion should be considered by the management and project teams as follow-up to the preliminary report of the value study. Sometimes, additional studies and information will be required. Management is responsible for implementing the alternatives with help from the project and value teams (SAVE, 2007).

Value Study Follow-Up Activities

The purpose of this step is to follow up on implementation of the value study results and improve the application of value methodology for future studies. Its fundamental questions (SAVE, 2007):

- What have we learned about how best to create or improve value of the subject under study?

2.5.3: Gulf Chapter (SGVE)

Due to the increasing number of members in the Arabian Gulf Chapter of the Society of Value Engineers and SAVE-International, and due to the success of Value Engineering applications in both the government and private sectors, the SAVE executive board approved the establishment of the Arabian Gulf Chapter during the SAVE Conference in 1998. The head office of the Arabian Gulf Chapter is located in Riyadh, Saudi Arabia (SGVE, 2008).

In the Kingdom of Saudi Arabia, the idea of Value Engineering was first made known in 1982 in the General Administration of Military Works in the Ministry of Defence and Air through
lectures and seminars that were held by the administration for its members. It was not until 1985 that the first Value Engineering continuing education programme was established and a private department for Value Engineering was opened (Al-Salmi, 2006).

In 1995, the Ministry of Municipalities and the Ministry of Country Affairs established Value Engineering programmes. Subsequently, many other governmental and non-governmental organizations began applying this kind of study to their products and projects (Al-Salmi, 2006).

Although the Gulf Chapter of Value Engineering held its third conference in Kuwait in 2005 so as to spread the applications of Value Engineering, there are still many mistakes in the practice of Value Engineering in the Gulf region and in Kuwait (Shublaq, 2008). For example, the Ministry of Public Works has not taken any initiative to establish a Value Engineering department or programme.

Shublaq (2008) added that, in the government sector, there has not been much satisfaction recently among the decision makers who have tried to apply Value Engineering in their projects, and these decision makers feel that people generally encounter the following issues during its implementation:

- Resistance to change (as a natural and instinctive reaction to anything new)
- Carelessness in many sectors in terms of developing skills and improving the standards of performance through training and rehabilitation
- Lack of clear vision and understanding of the importance of applying this kind of study
- Absence of encouraging reason to apply value engineering (appliers and non-appliers are the same)
- Lack of true following for the results from the Ministry of Finance or any other authority
2.5.3.2: SGVE – Value Concept

SGVE (2008) stated that the main objective of value studies is to improve value, and ‘value’ means getting the highest quality at the lowest possible cost. In order to improve value, there must be a way or mechanism to measure value. Since value depends on three main elements – cost, quality, and functional performance – the measurement of value is based on finding a relationship between all of these elements. Raising the efficiency of performance, improving quality, and reducing cost – all at the same time – leads to getting the highest value, as shown in the following equation:

\[
\text{Value} = \frac{\text{Function} + \text{Quality}}{\text{Cost}}
\]

Where:

- Function is the main purpose or goal for establishing a product, project, or administrative process;
- Quality means ensuring that the user’s demands, expectations, and desires are met; and
- Total cost is the sum of all costs throughout the life of the product, including operating and maintenance costs. The primary costs often attract the customer, although they usually amount to 6-30% of the total cost in construction projects (SGVE, 2008).

It is clear that the concept of ‘value’ in the Gulf Chapter different from that held by SAVE, since SAVE believes that Value = F/C. Al-Yousefi (2007) supported the definition of value used by the Gulf Chapter, which incorporates the concept of Quality in Value Index.

Al-Yousefi (2007) indicated that the early teaching of Lawrence Miles was that the Value Index is Function/Cost, where Function is the intended work that a product must do (i.e. Function is the
reason for the existence of the product and answers the question of “What does it do?”), and Cost is the Life Cycle Cost during the expected economical lifespan of the product.

A common first impression of this index might involve the assumption that value simply means the ability to fulfill functions, regardless of the quality features that are becoming more important at the present time.

Al-Yousefi (2007) recommended taking another look at this index, and he added the new definition of Quality as the desirable performance based on the opinion of the customer. ‘Quality’ could also be defined as “Value-added benefits” or being “Fit for Use or Purpose” (Al-Yousefi, 2007).

The basic function of a passenger car, for example, is to “move people,” but does a customer really evaluate or purchase a car based only on the function of moving people? Surely not, because there are other quality issues that influence people’s buying decisions, such as safety, fuel consumption, aesthetics, comfort, size, and ease of maintenance. Therefore, the value of a car or any product is a combination of function, cost, and quality (Al-Yousefi, 2007).

2.5.4: Case Study

In the Kingdom of Saudi Arabia, value engineering has been successfully applied in the government and the private sector since it was first introduced 20 years ago. One good example is Development of the Bani Al-Najar District.

Applying the principle of value engineering, as was done by one of the best consultant offices in the Development of the Bani Al-Najar District project in the centre of Al-Madeenah Al-Munawarah, is considered a scientific and practical application of the principle (Al-Sayid, 2008). The project contained many elements, including location improvement, paving of roads and
sidewalks, the establishment of a rain and flood drainage system and irrigation system, and the construction of a tunnel made of reinforced concrete for services.

Al-Sayid (2008) added that the cost of the services in the project was evaluated by the working team as about 59 million Saudi Riyals more than what had been already constructed in the region. The aim of the study was to suggest alternatives and solutions in order to get the highest benefit from the whole cost of the project through applying the principle of value engineering accredited to SAVE International. In the information collecting stage, the following aims were set: assuring the required performance and function, improving the project value and quality, making maintenance work as easy as possible, protecting the beauty of the region, and using modern technology in all systems utilized. The working team generated many ideas, which they then discussed and valued according to the standards of performance, their quality, the possibility of their application, and the total cost. Suggestions focused on providing alternatives for the tunnel of services, roads, and sidewalks, as well as the rain and flood drainage system and work associated with improving and beautifying the location.

These ideas were subjected to an evaluation process for their major facilities, defaults, and application feasibility. Then, 11 suggestions were developed, and the cost savings were estimated to be about 12.8 million Saudi Riyals, i.e. about 21% of the total cost of the project. The following pictures show the central area before and after the change.
Figure 2.6: The Centre of Al-Madeenah Al-Munawarah before development
(Source: (Al-Sayid, 2008))

Figure 2.7: The Centre of Al-Madeenah Al-Munawarah after development
(Source: (Al-Sayid, 2008))
So, within the context of the Middle East, Saudi Arabia was one of the first countries in the Gulf Corporation Council (GCC), of which Kuwait is a member, to implement and practice VE in procurement. This emerged in the 1980s, and subsequently the practice of VE within civil infrastructure procurement has been successful and has gradually evolved into the wider Gulf Chapter. It is notable; however, that Kuwait has yet to embrace VE to its fullest.

2.6: VALUE MANAGEMENT/VALUE METHODOLOGY IN HOUSING PROJECTS

The implementation and practice of VM/VE within infrastructure procurement and social housing has been largely successful in a global context, and VM/VE has proven to be promising for developing housing projects and is expected to deliver housing units that satisfy customers’ needs and expectations in the most cost-effective manner.

Unlike many countries in which housing is provided only for poor or low-income families, Kuwait provides housing for all of its citizens (who require it) through the Public Authority of Housing Welfare (PAHW). Evidence from within the Authority suggests that there is a significant lack of end-user satisfaction with the readymade housing designs. This has led to increased costs associated with refurbishment or remodelling of the houses after very short periods of time. The author contends that the lack of end-user involvement in the design of houses during the procurement process adopted by PAHW could be remedied by the implementation of techniques that help support the identification and alignment of value engineering.
2.6.1: Better Understanding of the Customers’ Needs and Requirements

VM/VE is influenced to a great extent by customer-driven techniques focused on understanding customers’ objectives and value systems, as well as identifying, analysing, and reacting to the various issues that hinder the achievement of customers’ objectives. Also, the project brief can be improved by focusing more narrowly on the requirements, analysing functions, and obtaining proper feedback.

This research looked in more detail at the VE Job Plan and how it may be used to overcome some of the problems described above. This technique stresses the involvement of end-users in the pre-workshop activities, workshop phases, and especially in the presentation phase – involvement in the presentation phase is imperative for achieving the desired outcome.

2.6.2: Eliminating Unnecessary Costs

VM/VE helps in (a) achieving the most value for money in catering to a range of customers’ requirements, (b) avoiding unnecessary expenditures, (c) sustaining a balance between cost and function, (d) using substitute materials, (e) examining design at key points, (f) discarding over specification, and (g) conserving energy (SAVE, 2007).

This research discusses the importance of VE for the construction of Kuwaiti housing as a means of enhancing end-user satisfaction and decreasing the costs incurred by government and end-users removing existing fittings and adding new ones. While this research is positioned within a Kuwaiti context, the emergent issues may also be relevant to a wide number of social housing providers.
2.7: CUSTOMER SATISFACTION

A ‘customer’ is defined as someone who makes use of or receives the products or services of an individual or organization. When it comes to construction, the customer is the individual that uses the final product of the construction industry; therefore, the client and the end-user are the customers. Customer satisfaction has been studied from a traditional perspective in the field of market research. To date, to the author’s knowledge, no attempt has been made to determine the specific factors that are vital to customer satisfaction and to take action for product improvement based on those factors. The main cause for this lack was the prevalent belief that it is more essential to retain existing customers than to try to gain new customers. This belief reflects the fact that it is much more difficult and expensive to gain a new customer than it is to keep a customer who is already satisfied and delighted with the products or services being provided (Bergman and Klefsjo, 1994).

Furthermore, the organization that bars its customers from the process of product development will be faced with the risk of losing its customers (Goetsch and Stanley, 2000). Today, organizations understand that customers are their most important asset and must be kept at the top of the organization's priority list in order for the organization to survive. This has motivated many industries to concentrate on their customers and involve them in the product development process (Goetsch and Stanley, 2000; Ahmed and Kangari, 1995). Therefore, the need to understand the customer's requirements and expectations has become essential for gaining new projects and keeping existing ones. Every organization has to provide its customers with quality product or services that meet or exceed the customers’ needs, and it must do so on time and at a reasonable price (Besterfield et al., 1999).
An examination of the historical development of housing projects has proven that the final users were not involved in the development of their housing units. Also, essential elements such as the users’ social and psychological needs, requirements, habits, and traditions were not taken into consideration or reflected in the design. This resulted in units that did not satisfy the users’ objectives or meet their expectations. Thus, the users either discarded or modified the units to suit their requirements. However, this practice had a negative effect on the building, its users, and the surrounding environment (Othman, 2008).

2.8: SUMMARY

Value Engineering was first applied in the mid-twentieth century in factories in the United States. This science was applied to construction projects in the late 1960s, (Zimmerman and Hart, 1982), and then it was introduced to many other countries throughout the world, including the United Kingdom, where the Value Engineering Association was established in 1966 (Kelly et al., 2007), Australia and Japan in the mid-1960s, China in 1978 (Alalshikh et al., 2008), and Saudi Arabia in the mid-1980s (SGVE, 2007).

Value management in construction has been applied in the United Kingdom since the late 1980s and has since become an established service with commonly understood tools, techniques, and styles (Kelly et al., 2007). In this research, the term ‘value engineering’ is used to mean the study of the application of value engineering for the design and construction of government-supplied readymade houses in Kuwait. Since the aim is to provide houses that satisfy the citizens’ needs and expectations, the concept begins with the design and development of the houses within the engineering and construction concept. Therefore, value engineering is used in this research.
In some of the countries that imported this science from the United States, there have been some changes in the study of value engineering. In the United Kingdom, the acronym for ‘Value Engineering’ (VE) was changed ‘VM’ for ‘Value Management’, and the Value Engineering Association changed its name to the ‘Institute of Value Management’ (IVM) (Kelly et al., 2007). In Saudi Arabia, the concept of Quality was chosen for measuring Value (SGVE, 2007).

The Job Plan of the primary Value Engineering, which was to improve the quality of the products produced by the manufacturing industries and simultaneously eliminate unnecessary costs, was modified by researchers in the construction field to make it compatible with and useful for construction projects (Kelly et al., 2007). In 2007, the SAVE International organization issued its "Value Standard," which is a modification of the value standard issued in 1997 and contains a Job Plan that can be used in construction, industrial, environmental, and other applications (SAVE, 2007).

The application of Value Engineering in Saudi Arabia has been successful in both government and private construction projects in that it eliminated unnecessary costs and preserved quality and value; an example of such a successful project is the "Developing of Bani Al-Najar District" project in Al-Madeenah Al-Munawarah (Al-Sayid, 2008). In spite of its success in other countries, value engineering is still not applied in Kuwait for many reasons, including the lack of clear vision and understanding of the importance of applying this kind of study, the absence of encouraging reasons to apply value engineering (among appliers and non-appliers, both), and the absence of a true following for the results from the Ministry of Finance or any other authority (Shublaq, 2008).
The next chapter is Kuwaiti Housing; this chapter focuses on the housing situation in Kuwait. It discusses the current scenarios and the various types of houses offered by the Kuwaiti Government.
CHAPTER 3: KUWAITI HOUSING
3.1: INTRODUCTION

In regard to housing issues, the State of Kuwait is considered one of the most developed countries in the world. This is due to the great will of the political leadership in the State, and is supported by the strong economy. A member of the Organization of Petroleum Exporting Countries (OPEC), the State exports oil and natural gas to many countries around the world. Kuwait is OPEC’s third largest oil producer and holds 8% of the world’s proven conventional oil reserves (EIA, 2006). This is remarkable, given that Kuwait’s population in 2008 totalled just over 3,300,000 people, with approximately 2,300,000 of that number being non-Kuwaitis and foreigners.

Therefore, many rules and regulations have been established in order to ensure good housing for Kuwaiti families. Each family has the right to housing provided by the government and is provided 150 KWD each month (about $550) that it remains on the waiting list to get a house.

Most developed countries aim to provide a good standard of housing welfare for their people, although the quality and availability varies by region. In the United Kingdom, for example, a major policy that was implemented within the social housing agenda was Decent Homes 2010. This policy was designed to “raise the game” in quality social housing construction and refurbishment through the use of existing resources and by retaining both ownership and management (within the local authority) or, when additional finance was needed, through:

1. An arm's length management organisation (ALMO);
2. Private Finance (i.e. PFI) to encourage extra private sector investment; or
3. Transfer of housing stock to a registered social landlord (RSL);
With the expectation that this would lead to:

- A step up on the housing ladder for future generations;
- Quality and choice for those who rent;
- The provision of high-quality, mixed, thriving and sustainable communities; or
- Reduced homelessness and other acute housing problems

The Kuwaiti government offers three home options for citizens (plot, flat, readymade house), and each married person is entitled to choose any option he or she prefers. A major problem with the readymade house option is that people are often unhappy with the design and make modifications inside and outside to better fit their needs. Having to modify the government houses immediately after receiving them is a waste of money for both the government and citizens. Figure 3.1 is the layout of Chapter Three.

![Figure 3.1: Chapter Three Layout](image-url)
3.2: KUWAIT COUNTRY BACKGROUND

Kuwait is a small, oil-affluent nation located at the top of the Arabian Gulf, adjacent to powerful or great countries, i.e. Iraq to the north, Saudi Arabia to the south, and Iran to the east (see Fig. 3.2). Among the Arabian Gulf nations, Kuwait was the first to have an elected parliament. In 2005, in order to bring change and culminate the male-dominated political structure, complete political rights also were granted to women. The right to vote and participate in elections was granted to women in May 2005 by the parliament, which had a National Assembly with 50 seats. There had been efforts to change the male-dominated political structure for quite some time before it was finally achieved in 2005. Sheikh Jaber al-Ahmad al-Sabah, who was the ruler in 1999, issued a decree giving full political rights to women, but the move was narrowly defeated in the National Assembly. Six years later, in 2005, the parliament gave women the right to vote and to compete as candidates in the elections for the 50-seat National Assembly (bbc.co.uk, 2009).

Figure 3.2: Map of Kuwait (Source: (World Atlas, 2010))
The main business of Kuwait is hydrocarbon products, with a substantial reserve of approximately 94 billion barrels of crude oil, which is about 10% of the world’s known oil reserves. This comprises 90% of the nation’s petroleum export income, 75% of the government’s revenue, and about 50% of the state’s GDP. The state started taking over all four of the major oil corporations operating in Kuwait in 1979, beginning with a 60% takeover from KOC in 1974; and with all of these corporations under its control, the government set up a new unit in 1980 called the ‘Kuwaiti Petroleum Corporation’ (KPC).

Kuwait’s oil fields were utilized first in the 1930s, developed further after World War II and independence in 1961, and today oil rules the Kuwaiti economy, contributing approximately 90% of total export revenues (BBC, 2009).

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<th><strong>Table 3.1: General Statistics of Kuwait</strong></th>
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<td><strong>Area</strong></td>
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<td><strong>Membership of International Organisations</strong></td>
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(Source: fco.gov.uk, 2009)
3.2.1: History of Kuwait

The name ‘Kuwait’ comes from an Arabic word that means "Little Fort.” Kuwait was initially founded by the clans of the Anaiza in the early 18\textsuperscript{th} century. Anaiza is a tribe from the Najd. In the late 17\textsuperscript{th} century, they migrated from the Najd to the Gulf shores. During this process, people with various skills came together and were called ‘BaniUtub’. The Sabahs fled drought in the Najd in 1710. They continued migrating to the south and some settled at Zubara on the west coast of Qatar, but due to unfavorable conditions, they travelled back towards the north and settled in Kuwait where they were able to find water (Crystal, 1995)

According to archaeological evidence (i.e. some drilled pearl, stone tools, and pottery fragments), life has existed in the area since 5000 BCE and people of that period survived by trading pearls with the Ubaid civilization of Mesopotomia (ancient Iraq) and fishing. Later, between 2300 and 1100 BCE, villagers on Faylakah Island started bartering goods with the rich Dilumn civilization of Bahrain. Greek sailors came to Faylakah around 300 BCE and founded a colony called Ikaros. The people of Kuwait lived on or near the coast, but after around 500 CE they started building small villages further inland. Groups of Bedouin (nomad) families also made their homes in the desert and raised sheep, goats, and camels (Cavendish, 2006)(Figs 3.3 and 3.4).
3.2.2: Geography of Kuwait

Located in the north western portion of the Gulf, Kuwait shares its borders with Iraq to the north and Saudi Arabia to the south. To its east is the Arabian Gulf. In 1969, a neutral or divided zone was established between Kuwait and Saudi Arabia in the south, covering an area of 2,200 mi² (5,700 km²). At their nearest points, the Kuwaiti and Iranian frontiers are only some 15 km apart (fco.gov.uk, 2009).
Kuwait has nine islands of which Bubiyan and Faylaka are the most important from the standpoint of oil reserves and archaeological sites. Kuwait extends 124 mi (200 km) from north to south and 106 mi (170 km) from east to west.

- Total Area: 17,820 km\(^2\)
- Land Area: 17,820 km\(^2\)
- Water Area: 0 km\(^2\)

Roughly the size of Wales, Kuwait is almost entirely flat and arid. Kuwait can be divided into four geographical zones – a desert plateau in the west, a desert plain that covers most of the country, salt marshes and saline depressions that cover most of Kuwait Bay, and coastal dunes in the east. Kuwait has a gently undulating desert that gradually rises away from the sea to a maximum height of 475 ft (145 m) in the northwest and 951 ft (290 m) in the east. The coastline in the north and around Kuwait Bay mainly has mudflats, and fine beaches line its southern shores. Though there are no rivers, lakes, or mountains, although there are a few low hills, such as the Ahmadi Hill at 450 ft (137 m) in the south and JalAz-Zor Ridge at 476 ft (145 m) (O’Shea and Spilling, 2010)

3.2.3: Environment and Climate of Kuwait

In Kuwait, there are four seasons. Spring starts in mid-February and lasts through mid-May with mild, pleasant, and cool weather at night. Typically, as summer approaches, the weather becomes hot and windy. Summer lasts until early November with high temperatures, scorching winds, and troublesome sandstorms. By mid-July, the temperatures rise to a peak along with humidity. In the later part of summer, temperatures decline and humidity spikes. Fall lasts for a
month with mild, pleasant, and cool temperatures, and finally winter lasts from early December to mid-February (O’Shea and Spilling, 2010).

The water of the Arabian Gulf, after desalination, is an important source of drinking water for the people of Kuwait. Sources of natural fresh water are limited, and some of world's largest and most sophisticated desalination facilities provide much of the drinking water. Unfortunately, these facilities also add to the air and water pollution and desertification (Cavendish, 2006).

3.2.4: Kuwait Economy

The Kuwaiti dinar, the local currency of the Kuwait, was created in 1961 after the country gained independence, replacing the Indian rupee. Now, almost every year, it is one of the richest currencies in the world. The dinars are issued by the Central Bank of Kuwait. The strength of Kuwait's currency is a clear reflection of its economy, and both of these are based on the foundation of the country’s oil/petrol reserves (Casey, 2007).

Kuwait, having a high per capita income ($33,000 in 2007), is a rich country, owning 10% of the world’s known oil reserves. The oil reserves helped Kuwait to earn around US$58 billion in FY2007. Foreign reserves and investment income are substantial. During the last two years, there has been good performance in the Kuwaiti stock market (Casey, 2007).

3.2.5: Kuwait Housing Background

Since the middle of the last century, the State of Kuwait has given special attention to providing housing for its citizens, and the following data were provided by PAHW (PAHW, 2006).
• In 1954, the Construction Council was established, and 2,000 multi-model housing units were built in the following areas: Al-Shamiya, Kaifan, Fayha, Salmiya, and Dahiya.
• In 1956, the Public Domains Department was established in order to distribute the houses.
• In 1958, the Housing Committee was formed in order to help the Public Domains Department conduct its mission.
• In 1960, the Credit Bank was established.
• In 1962, the Ministry of Social Affairs and Work was entrusted to distribute the government houses.
• In 1965, the Credit Bank was developed in order to build houses by the name of Credit and Saving Bank. It also gives loans to citizens to help them build their own houses.
• In 1974, the General Organization for Housing was established in order to build government houses for citizens.
• In 1975, The Ministry of Housing was established in order to take over the mission of distributing government houses.
• In 1986, The Ministry of Housing was combined with the General Organization for Housing in order to plan, design, execute, and distribute the government houses.
• In 1993, the Public Authority for Housing Welfare (PAHW) was established.

3.3: PUBLIC AUTHORITY OF HOUSING WELFARE (PAHW)

Established under law No. (47) in 1993, PAHW is the government department responsible for building housing for those who qualify; each married person is entitled to go to PAHW and choose the kind of house that he or she prefers. Through three housing approaches (i.e., plots, houses, and flats), it aims to guarantee a good residence for all Kuwaiti families. An additional choice is also being evaluated – the concrete framework (PAHW, 2006). The PAHW also serves to activate the role of the private sector companies that work in the construction and housing sectors (PAHW, 2006).
With an annual budget of more than KWD200 million, PAHW is easily the largest real estate development concern in Kuwait. PAHW aims to ensure decent housing for Kuwaitis by providing subsidised dwellings to eligible nationals. A typical residential unit, which can either be a piece of land (plot), a house, or an apartment, has an area of about 400 m$^2$. Those who are allotted housing units have to pay back the cost in monthly instalments over a period of 20 years (PAHW, 2006).

Since its inception, PAHW has completed and distributed over 70,000 units, including basic infrastructure such as schools, police stations, mosques, and libraries. In 2002, a total of 768 government houses and 3,398 plots were distributed in various areas. Currently, the waiting period for people opting to buy a house through the PAHW is 10 to 18 years, despite the fact that the Authority has completed several large-scale projects, including a 30,000-km$^2$ urban development for 100,000 people, known as the Al Qurain Project at a total cost of KWD500 million (PAHW, 2006).

### 3.3.1: Responsibilities of PAHW

The projects done by PAHW are divided into three parts, i.e., residence units, public buildings, and infrastructure. The following data concerning these parts were selected from Al-Saeed (2007).

<table>
<thead>
<tr>
<th>Table 3.2: Types of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residence Units</strong></td>
</tr>
<tr>
<td><strong>Public Buildings</strong></td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
</tr>
</tbody>
</table>

(Source: PAHW, 2007a)
The following figures provide examples of public building and infrastructure construction in Kuwait.

![Figure 3.5: Public Buildings (Source: (PAHW, 2007a))](image)

![Figure 3.6: Basic Infrastructure (Source: (PAHW, 2007a))](image)

### 3.3.2: Option – Plot and Mortgage

Plot and mortgage: A 400 m² plot of open land is given to citizens along with a loan of 70,000 KWD (about $250,000) to be paid back over a long period of time without interest. Distributions are made to citizens as soon as the infrastructure in the area is completed (PAHW, 2007a). The plot and mortgage option gives citizens the full freedom to choose the outside design and shape as well as the number, size, and arrangement of the rooms. It is the most popular option, preferred by most citizens over a government house or a flat. Al-Khaiat et al. (2005) stated that the reasons given for choosing the land plot and loan system were:
- To choose a design that is different from neighboring designs (100%)
- To avoid having to make changes in the unit after the selected house system was completed (84%)
- The building area and number of rooms were inadequate (74%)
- To have better finishing (70%)
- To build a basement (66%)
- Because the financial situation of the owner was good (50%)

So, clearly, Kuwaiti families prefer unique houses that are different from those of their neighbours and prefer to build larger houses, even if there is no immediate need for the space. Samples of houses built by citizens’ contractors are shown in Figure 3.8. There are some problems in this option (Al-Khaiat et al., 2005): 67% of the owners had problems during the building stages, 70% think it would have been easier if the PAHW had helped in building the houses, and 42% would choose the partially constructed housing system (concrete framework) if it were available.

Figure 3.7: Houses Built by Citizens’ Contractors in Kuwait (Source: (Al-Saeed, 2007))
3.3.3: Option – Flats

Government flats are housing units. One such project is the Al-Sawaber Project (PAHW, 2007a). To date, only 1,088 flats have been distributed to Kuwaiti citizens to date, meaning that most Kuwaiti families live in single-unit houses.

The Al-Sawaber project occupies an area of 24.5 ha in the heart of Kuwait City and includes 33 eight-story buildings, 524 apartments of 236 m² each. The Al-Sawaber project has several problems, one of which is the incessant traffic in the city center. In addition, eight-story buildings do not suit the taste of people who are accustomed to living in two-story villas, and only 300 of the eligible families opted to live in these flats. It is likely that these families made this decision in order to avoid the delay of 8-11 years that it takes to receive a plot (Al-Khaiat, 1989).

Now, the government is studying a new design in an effort to avoid the problems encountered in the Al-Sawaber project. Figures 3.9 and 3.10 show designs for the new project the ‘Dream Flats’. Each flat will be in a five-storey building with only one flat per storey, with each flat having an area of 400 m², a private entrance, and services (Al-Saeed, 2007).

![Figure 3.8: Design of the new Kuwaiti flats (Source: (Al-Saeed, 2007))](image-url)
Figure 3.9: The New Kuwaiti Flat Design (Source: (Al-Saeed, 2007))
3.3.4: Option – Black Concrete

The black concrete framework costs 25,000 KWD (about $90,000), and citizens who choose this option are given the cost difference between the whole cost of a government house and the cost of the executed framework, plus an addition 25% of the cost difference, so the total cost is approximately 62,500 KWD (about $230,000) (Al-Saeed, 2007). It consists of footings, column, beams, and slabs only. In this way, the PAHW offers the citizen the opportunity to complete the interior and edifice as he or she wishes (Al-Saeed, 2007).

The PAHW provides incomplete buildings to recipients, who subsequently “finish” the buildings according to their personal preferences (Mandi, 2006). This system has the following characteristics:

- The NAHC’s responsibility for many construction stages of the housing units will be reduced, which will increase the productivity of the NAHC in providing houses and decreases the waiting period.
- Citizens will have the freedom to customize their houses according to their wishes and needs, which should end the alterations problem.

Currently, this option is in its experimental stages; PAHW has distributed only 51 incomplete buildings in 2007 (PAHW, 2007a). Figure 3.11 shows the black concrete framework.
3.3.5: Option – Government Readymade Houses

Government houses are readymade houses distributed to citizens. Each has an area of 400 m² and costs about 55,000 KWD (about $200,000), to be paid back without interest through monthly payments over a 20-year period (PAHW, 2007a). Almost 47,000 houses have been distributed to Kuwaiti citizens so far. By comparison, only slightly more than 24,000 plots and almost 1,100 flats have been distributed. Figures 3.12, 3.13, and 3.14 show government houses design.
Figure 3.12: Government house (Ground Floor) (Source: (PAHW, 2008a))

Figure 3.13: Government house (First Floor) (Source: (PAHW, 2008a))
The problem with government housing is that some citizens prefer unique features, maybe for personal or family needs, or simply because they desire a house that looks different from the surrounding houses. In some cases, the occupants of PAHW houses have modified them significantly. This has become a common practice that is conducted on a large scale, and it represents both a waste of PAHW resources and the imposition of costs on the occupants of the government housing (Al-Khaiat et al., 2005).

### 3.3.6: Total Executed Projects

Below is a list of the projects that have been completed by PAHW since it was established in 1993 through June 2006 (PAHW, 2007a).

Table 3.3: Total Completed PAHW Projects

<table>
<thead>
<tr>
<th>Residence Units Completed</th>
<th>Public Buildings</th>
<th>Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houses: 46,646</td>
<td>Police Stations: 35</td>
<td>Elementary: 87</td>
</tr>
<tr>
<td>Plots: 24,210</td>
<td>Mosques: 195</td>
<td>Intermediate: 66</td>
</tr>
<tr>
<td>Apartments: 1,088</td>
<td>Health Care: 38</td>
<td>Secondary: 35</td>
</tr>
<tr>
<td>Executed Concrete Framework: 51</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total: 71,995</strong></td>
<td><strong>Total: 268</strong></td>
<td><strong>Total: 188</strong></td>
</tr>
</tbody>
</table>

(Source: PAHW, 2007a)

### 3.3.7: PAHW Projects under Construction

At the present time, PAHW is building many houses, plots, infrastructure components, and public utilities in a number of new areas, including Al-Nahda and Al-Rehab. Table 3.5 lists the projects on which PAHW is currently working (PAHW, 2007a).

Table 3.4: Projects under Construction

<table>
<thead>
<tr>
<th>Residence Units</th>
<th>Public Buildings</th>
<th>Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houses: 1,289</td>
<td>Police Stations: 5</td>
<td>Elementary: 26</td>
</tr>
<tr>
<td>Plots: 4,491</td>
<td>Mosques: 38</td>
<td>Intermediate: 19</td>
</tr>
<tr>
<td>Flats: --------</td>
<td>Health Care: 7</td>
<td>Secondary: 13</td>
</tr>
<tr>
<td><strong>Total: 5,780</strong></td>
<td><strong>Total: 50</strong></td>
<td><strong>Total: 58</strong></td>
</tr>
</tbody>
</table>

(Source: PAHW, 2007a)
3.3.8: Future Housing Projects in Kuwait

The Kuwaiti government undertook massive housing projects to provide houses for first-time buyers and young families. On average, 1,500 houses are built every year, but the government intends to build six large, modern cities containing 125,000 units, with an average of 12,500 houses yearly (PAHW, 2007a). This plan aims to solve the problem of the backlogged applications and long waiting periods. Table 2.4 shows the number of applications accumulated from 1982 to the end of 2007 (PAHW, 2008b).

Table 3.5: Number of applications accumulated from 1982 to the end of 2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Applications</th>
<th>Number of Families Still Waiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>2,369</td>
<td>11</td>
</tr>
<tr>
<td>1983</td>
<td>2,523</td>
<td>14</td>
</tr>
<tr>
<td>1984</td>
<td>4,003</td>
<td>28</td>
</tr>
<tr>
<td>1985</td>
<td>3,849</td>
<td>26</td>
</tr>
<tr>
<td>1986</td>
<td>3,761</td>
<td>51</td>
</tr>
<tr>
<td>1987</td>
<td>3,782</td>
<td>71</td>
</tr>
<tr>
<td>1988</td>
<td>4,000</td>
<td>73</td>
</tr>
<tr>
<td>1989</td>
<td>4,920</td>
<td>113</td>
</tr>
<tr>
<td>1990</td>
<td>2,759</td>
<td>86</td>
</tr>
<tr>
<td>1991</td>
<td>3,909</td>
<td>338</td>
</tr>
<tr>
<td>1992</td>
<td>7,160</td>
<td>2,364</td>
</tr>
<tr>
<td>1993</td>
<td>6,323</td>
<td>2,188</td>
</tr>
<tr>
<td>1994</td>
<td>5,529</td>
<td>2,172</td>
</tr>
<tr>
<td>1995</td>
<td>5,483</td>
<td>2,638</td>
</tr>
<tr>
<td>1996</td>
<td>5,002</td>
<td>3,105</td>
</tr>
<tr>
<td>1997</td>
<td>4,859</td>
<td>3,466</td>
</tr>
<tr>
<td>1998</td>
<td>5,255</td>
<td>3,964</td>
</tr>
<tr>
<td>1999</td>
<td>5,384</td>
<td>4,155</td>
</tr>
<tr>
<td>2000</td>
<td>5,559</td>
<td>4,385</td>
</tr>
<tr>
<td>2001</td>
<td>6,650</td>
<td>5,487</td>
</tr>
<tr>
<td>2002</td>
<td>7,273</td>
<td>6,050</td>
</tr>
<tr>
<td>2003</td>
<td>7,209</td>
<td>6,075</td>
</tr>
<tr>
<td>2004</td>
<td>7,290</td>
<td>6,656</td>
</tr>
<tr>
<td>2005</td>
<td>7,765</td>
<td>7,566</td>
</tr>
<tr>
<td>2006</td>
<td>9,838</td>
<td>9,793</td>
</tr>
<tr>
<td>2007</td>
<td>7,942</td>
<td>7,942</td>
</tr>
<tr>
<td>TOTAL</td>
<td>140,433</td>
<td>78,817</td>
</tr>
</tbody>
</table>

(Source: PAHW, 2008b)
PAHW works with various government organizations to arrange for the provision of open lands for citizens, dedicated for housing care purposes within the general planning framework of the State of Kuwait (PAHW, 2006). Furthermore, PAHW has developed a complete plan for six new residence cities—Jaber Al-Ahmed, Sa’ad Al-Abdellah, Sabah Al-Ahmed, Khairan, Sabuya City, and Al-Mitla’a—distributed on very wide pieces of land in the south and north of the state. In addition, PAHW will build many public utilities, schools, health care centers, mosques, sports clubs, police stations, and university departments. It will also build the infrastructure, such as road systems, electricity systems, water systems, phone systems, sanitary drainage systems, and rainfall drainage systems (PAHW, 2006).

3.3.9: The New Cities

The following data were taken from PAHW (2006).

A – JaberAl-Ahmed:

It consists of 8,629 residence units in addition to the following public utilities:

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Projects</th>
<th>Allocated Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Schools</td>
<td>37</td>
</tr>
<tr>
<td>2.</td>
<td>Mosques</td>
<td>32</td>
</tr>
<tr>
<td>3.</td>
<td>Health care centers</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Police stations</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Petrol stations</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>University</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Hospitals</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>Stadiums</td>
<td>1</td>
</tr>
</tbody>
</table>

(Source: PAHW, 2006)
**B - Sa’adAl-Abdellah**

It consists of 3,576 residence units (400 m² each) in addition to the following public utilities:

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Projects</th>
<th>Allocated Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Schools</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Mosques</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Health care centers</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Police stations</td>
<td>1</td>
</tr>
</tbody>
</table>

(Source: PAHW, 2006)

**C - Sabah Al-Ahmed**

It consists of 9,000 residence units (plots and houses of 600 m²). Located in the south of the state, this city costs a total of KD 2.327 billion, which is about $8.6 billion. PAHW will pay almost $5.0 billion, while the private sector will invest about $3.8 billion in the city (PAHW, 2006).

**D - Khiran, the Modern**

It consists of 30,000 residence units (plots and houses of 600 m²). Also located in the south of the state, the whole area of the project is 14,000 ha (PAHW, 2006).

**E - Al Mitla'a**

This city consists of 15,000 residence units (plots and houses of 600 m²). Located in the north of the state, the whole area of the project is 6,500 ha (PAHW, 2006).

**F - Subbyia City**

Subbyia consists of 50,000 residence units (plots and houses of 600 m²) in the north of the state (PAHW, 2006).
Thus, the new government policy is clear – it will be an outward expansion removed from the crowded cities of Kuwait. The government is encouraging citizens to accept residences in these new cities by offering various facilities, such as larger houses with all necessary services, before distributing the houses. An added incentive is that of new work opportunities, since the government plans to develop trade and industry in these new cities and nearby areas.

Clearly, this projects a huge investment, so the Kuwaiti government needs to remove all obstacles that might hinder its success and avoid repeating the mistakes that have been made in the past.

3.4: Development of Kuwait Readymade Houses

In Kuwait, 46,646 houses have been distributed to citizens so far. Figure 3.15 shows Kuwaiti readymade houses.

![Figure 3.14: Shape of a Kuwaiti Readymade House (Source: (PAHW, 2008a))](image)

Families that choose to receive PAHW-built houses are provided with complete structures built by local contractors to standard PAHW designs (Al-Khaiat et al., 2005). This system has both strengths and weaknesses. Using standard designs makes it possible to build a large number of units and upgrade with higher-quality material at a competitive price. It also shortens the time
needed to build housing units. On the other hand, some citizens prefer unique features in their houses, for personal or family needs, or simply to look different from their neighbors. In some cases, as mentioned before, PAHW house occupants have substantially rebuilt their PAHW homes. Because this has been carried out on a large scale, it represents both a waste of PAHW resources and an imposition of costs on the occupants of government housing.

This problem manifests itself most clearly in those housing projects where recipients remove or alter large sections of the units to meet their own objectives and needs. Al-Khaiat et al. (2005) believe that the concrete framework or “Partially Constructed Houses System” will solve the rebuilding problem and shorten the waiting period for acquiring houses. So, the problem remains that some citizens change the shape of the house both outside and inside. The percentage of change differs according to each modification, but sometimes it is 100% when the house is torn down and a new house is built. The following figures show the changes done in readymade houses distributed in 2006 in Fahad Al-Ahmad City.

Figure 3.15: Changes made by citizens to Kuwaiti readymade houses (Source: (Fahad Al-Ahmad City, 2007))
3.4.1: Design of New Government Houses

PAHW has realised that there are problems with the design process of the government houses because some citizens changed the interior and outside shape of their houses as soon as they received them. Thus, in addition to the black concrete framework, PAHW tries to keep up with new technology in the housing design domain and new styles of building by developing new types to suit the requirements of Kuwaiti families (Al-Saeed, 2007).

The PAHW is working hard to design and build houses that will gain the approval of all Kuwaiti families, thereby saving money and time that were wasted during the renovation process. PAHW is now planning for a new house design with a developed architectural shape. The following data and figures show the new vision of the government house design and redesigned houses from the exterior and interior (Al-Saeed, 2007).

Figure 3.16: New Government House Design (Source: (Al-Saeed, 2007))
The construction area of a new government house is 434 m²; see figures, 3.18, 319, and 3.20

A - Ground floor area (216 m²) includes the following:

- Bureau 'Diwaniyah' (Meeting Room) (32 m²)
- Sitting room (34 m²)
- Room (19 m²)
- Kitchen (29 m²)
- Driver’s room (8 m²)
- Inside field (36 m²)
- Outside field (64 m²)
- Three bathrooms of different sizes (Al-Saeed, 2007)

Figure 3.17: The New Kuwait Government House Design (Ground Floor) (Source: (Al-Saeed, 2007))
B - First floor area (168 m²) includes the following:

- Main Bedroom (27 m²)
- Bedroom (16 m²)
- Bedroom (19 m²)
- Bedroom (19 m²)
- Sitting room (35 m²)
- Three bathrooms of different sizes (Al-Saeed, 2007)

Figure 3.18: The New Kuwait Government House Design (First Floor) (Source: (Al-Saeed, 2007))
C - Roof floor area (50m²) includes the following:

- Servant Room (8 m²)
- Washing Room (3 m²)
- Bathroom (4 m²)

Figure 3.19: The New Kuwait Government House Design (Roof Floor) (Source: (Al-Saeed, 2007))

3.4.2: Comparison between Current and New Readymade House Design

Table 3.9 shows the differences between government houses of the current and the new design.

<table>
<thead>
<tr>
<th>Table 3.8: Current and New Readymade House Design Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Design</strong></td>
</tr>
<tr>
<td>Number of Rooms</td>
</tr>
<tr>
<td>Room Average Area</td>
</tr>
<tr>
<td>Number of Bathrooms</td>
</tr>
<tr>
<td>Bureau 'Diwaniyah' Area</td>
</tr>
<tr>
<td>Kitchen Area</td>
</tr>
<tr>
<td>Basement</td>
</tr>
</tbody>
</table>

(Source: Al-Saeed, 2007; PAHW, 2008a)
3.5: SUMMARY

This chapter provides an overview of the country with respect to information on its geography, economy, population, and the Public Authority of the Housing Welfare (PAHW). As discussed, the PAHW is the government division responsible for distribution of houses and housing options to the citizens of Kuwait. The PAHW has the responsibility of collecting information from the public, designing and constructing houses, and allotting them to citizens. The three basic options provided by the PAHW are plots, readymade houses, and flats. Of these, the most popular option is plots because it allows owners to build according to their choice of designs. After that, the order of preference is government readymade houses and flats. The government readymade houses have 6-7 spacious bedrooms, with living rooms, multiple bathrooms, and a kitchen, all built on a 2-floor design. They also have a courtyard that is completely covered and used as a ‘Diwaniyah’ (a meeting place for the male members of the family).

Although this house is considered adequate by some, most prefer plots. Reasons for the general dissatisfaction with government readymade houses were investigated through empirical data collection from the citizens of Kuwait and the PAHW and are discussed fully in the data analysis chapter.

The next chapter looks at housing provided in United Kingdom and Jordan for the purposes of comparison to housing in Kuwait.
CHAPTER 4: INTERNATIONAL PERSPECTIVE
ON THE PROVISION OF SOCIAL HOUSING
4.1: INTRODUCTION

In the United Kingdom (UK), housing options are provided at affordable prices to citizens who cannot afford to build their own houses. These houses are known as ‘social housing’ or ‘affordable housing’. The main factor that prevents citizens from building their own homes is lack of adequate financing. A variety of models and designs are constructed by the government to ensure that the government readymade houses suit citizens’ needs. Furthermore, studies are conducted to understand the needs of families, individuals, and the disabled. It is with consideration of these facts that the houses are designed and constructed.

In Jordan, the government focuses its housing programs on the needs of its poor or low-income citizens and provides housing to meet those needs.

Prior to starting the literature review of UK and Jordan social housing, let us highlight the differences between these approaches and that of Kuwait discussed in the previous chapter. The governments of the UK and Jordan, like those of many other countries, provide social housing to citizens who are financially unable to buy their own houses. In contrast, the Kuwaiti government provides housing to all citizens irrespective of income status, as all land belongs to the government.

This chapter first discusses affordable housing in the UK then affordable housing in Jordan. The next section compares housing in the UK and Jordan with housing in Kuwait. The topics of best value and customer satisfaction in housing are also discussed in this chapter. Figure 4.1 provides an overview of the structure of this chapter.
4.2: UK HOUSING

The extent of the social rented sector in England became greatest in 1979 when there were over 5.5 million social rented units, which represented 31% of the English housing stock of 17.7 million units (Table 4.1).

During that period of time, private renting (including non-profit provision) could be held responsible for perhaps 12% of the stock, and the vast majority of this sector was either controlled or free of rent. The percentage of owner occupation was moving at about 57% of the stock, due to which it became the majority tenure in the late 1960s. Since then, there has been a significant decline in the size of the social rented sector, and the ownership has also been greatly
redesigned, increasing the performance of non-profit housing associations at the expense of local authority (council) housing (Whitehead and Scanlon, 2007).

Table 4.1: Dwelling Stock and Tenure 1951-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Owner-occupied</th>
<th>Private Rented</th>
<th>Rented from HA</th>
<th>Rented from LA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>000s</td>
<td>%</td>
<td>000s</td>
<td>%</td>
<td>000s</td>
</tr>
<tr>
<td>1961</td>
<td>6,068</td>
<td>44</td>
<td>4,377</td>
<td>32</td>
<td>3,382</td>
</tr>
<tr>
<td>1971</td>
<td>8,503</td>
<td>53</td>
<td>3,122</td>
<td>19</td>
<td>4,530</td>
</tr>
<tr>
<td>1979</td>
<td>10,019</td>
<td>57</td>
<td>2,168</td>
<td>12</td>
<td>368</td>
</tr>
<tr>
<td>1981</td>
<td>10,773</td>
<td>60</td>
<td>2,044</td>
<td>11</td>
<td>410</td>
</tr>
<tr>
<td>1991</td>
<td>13,237</td>
<td>67</td>
<td>1,927</td>
<td>10</td>
<td>608</td>
</tr>
<tr>
<td>2001</td>
<td>14,818</td>
<td>70</td>
<td>2,152</td>
<td>10</td>
<td>1,424</td>
</tr>
<tr>
<td>2005</td>
<td>15,352</td>
<td>70</td>
<td>2,469</td>
<td>11</td>
<td>1,817</td>
</tr>
</tbody>
</table>

(Source: Whitehead and Scanlon, 2007)

The main cause for the declining importance of the social sector has been the large and constant expansion of owner occupation. By 2005, owner occupation accounted for 70% of the much larger stock of 21.8 million units, while 11% was calculated as private renting (although there was some belief that this was an underestimate, especially in London). So, social renting was estimated at 18% of the total stock – some 4 million units, a net reduction of 1.5 million units since 1979. Of this total, local authorities provided 53%, and housing associations provided 47% (Whitehead and Scanlon, 2007).

4.2.1: Affordable Housing

Keeping in mind that the scarcity of housing and the high house prices in recent years has made it impossible for many people to acquire affordable housing and, in turn, that this has harmed the ability of certain employers to attract ‘key workers,’ the Department established the following Public Service Agreement (PSA 5) target in 2002:
To achieve a better balance between availability of housing and its demand, including improving its affordability, in all English regions while still preserving valuable countryside around our towns, cities and in the green belt and the sustainability of towns and cities (Wilson and Anseau, 2006).

The need for a financed housing provision has long been considered. The cost of housing in the private sector that meets acknowledgeable standards in comparison with the level and distribution of incomes and assets assumes that large numbers of households “lack the resources to make a demand for decent housing effective in the market.” Without subsidised housing, large numbers of people would be unable to obtain housing of a decent standard. Still, one of the problems associated with the affordable housing provision is that there is no legal or agreed-upon definition of what constitutes ‘affordable housing’ (Wilson and Anseau, 2006).

The word ‘affordable’ is used in various ways in relation to housing; apart from covering housing provided with public subsidy, it also generally describes housing of any tenure that is judged to be affordable to a particular household or group by analysis of housing costs, income levels, and other factors. In 2002, the Chartered Institute of Housing (CIH) presented evidence to the Commons Select Committee’s inquiry into affordable housing in which it demanded precise and appropriate definitions of affordable housing where there is a need to achieve and measure specific outcomes (Wilson and Anseau, 2006).

4.2.1.1: Affordable Household Requirements

Housing developers, as a vital part of their business planning, conduct research to determine what homebuyers want from a home. A survey was conducted by the Housing Corporation
(2007) to determine what households need from affordable housing. Also, telephone interviews were conducted with developers, along with a survey of existing literature so as to determine the key factors. The following factors were noted as vital for present-day households:

*Property size:* Researchers found that smaller flats are unpopular because they have much less space and are seen as likely to border on areas of crime (CABE, 2005). Still, though, there is the need for very small flats due to the constraint of affordability. Though flats vary in their demographic profile, older people generally tend to be attracted to single-floor living in a flat, and more so when lifts are included; they also prefer specially designed blocks, with reliable security measures and effective management (CABE, 2005). Due to the increasing aging population and ongoing challenges around housing provision, there is concern about the needs of this demographic group and relevant housing aspirations continue to increase in importance for both public and private developers.

*Dwelling types:* Housing preferences are strongly affected by family circumstances and stage of life. It was revealed from research that, while most people prefer detached dwellings, those in middle-income households prefer new developments within older terraced-style housing. Among new buyers, 49% are ready to live in terraces, and 30% are willing to live in flats (Lichfield, 2005).

*Internal space:* There is a noteworthy demand for larger rooms as opposed to larger number of smaller rooms even though, as people use their homes for many activities, there is also the demand for specialised small rooms for working at home, study, or utility spaces. It is seen that
families require more separation between adult and child areas, while others are more amenable to open-plan living. Houses with functional lofts and basements are needed (CABE, 2005).

Outdoor space: The heavy density of housing seems to be a main concern in local development frameworks, and so it is clear that households do not want to consider this at the expense of outdoor living space. For all life-stage groups and dwelling types, garden size is of importance, especially for families. From a survey, 75% opted for private over shared or communal space. For the most part, communal spaces are only of use when they are shared with other similar households (e.g., older people). They are the target of criticism by residents due to their poor design and for being merely decorative (CABE, 2005).

Kitchens and bathrooms: These are the two key inner spaces that remain major concerns in consumers’ housing choices. Because of the importance placed on kitchens, it has become a trend for developers not to simply install a fully fitted kitchen, but also a hob, cooker, and all white goods. Unlike in the social housing sector, the provision of a suite bathroom in two-bedroom private residences is a prevalent feature, with the provision of two-suite bathrooms in properties over 1,000-1,200 ft². Most of the bathrooms in use have a shower in place of a bath, for space and mainly for lifestyle reasons (Lichfield, 2005).

Energy efficiency: There has been an increasing amount of interest in the environmental sustainability of housing, both for newly built properties and retrofitted existing homes. The Commission for Architecture and the Built Environment (CABE), World Wide Fund for Nature (WWF), and the Halifax Bank of Scotland (HBOS) recently found that 87% of consumers
wanted to know if their homes are environmentally friendly, 84% of whom were willing to pay 2% extra on the purchase price for an Eco-home (Sustainable Development Commission, 2005). Advanced government initiatives given through the Energy Savings Trust also found that householders were receiving grants and support for the purpose of improving insulation and installing new energy-saving technologies (CABE, 2005).

*Telecommunication:* This is the area in which developers seemed unaware of requirement issues that are now quite familiar to social housing landlords. When analogue signals replaced digital television signals, the need arose for new aerials/receivers on apartment blocks and even new wiring for individual apartments. So, social housing landlords are currently considering the proper technology and service charge implications that will be incurred as a result of this change; still, though, the developers (who hardly retain the ongoing maintenance responsibility) seem unaware of this issue. With a great number of householders concentrating on options for working at home, modern telecommunication facilities are becoming an increasingly important consideration (Lichfield, 2005).

*Neighbourhood:* While looking for a home, householders are influenced by the quality and affordability of the property as well as by other social aspects, such as the local schools, shops, and their overall impression of the community. Of great importance is the presence of local shops. The ability to move around the neighborhood was considered a benefit especially when it was observed as creating a sense of community (CABE, 2005). Furthermore, it has been found even if most of the factors in the selection of a home are met, an aversion to the neighborhood as a whole can prevail (Cole and Robinson, 2003).
Parking: Inadequate parking facilities in developments based on Planning Policy Guidance (PPG3) principles were the most upsetting factor for many residents: 45% complained about this instantly (CABE, 2005); nonetheless, consumer surveys showed that parking was of a very low priority when it came to selecting a dwelling.

External appearance: A main aspect in the choice of housing is the quality and aesthetic elements of the property. If there is a high-quality design and respect for the local vernacular, it tends to remain important and people state clearly that they do not want to live in ‘featureless boxes.’ Scenic landscapes also play an important role in improving the perception of the house and the neighborhood (CABE, 2005).

This new research, which was performed on behalf of the Housing Corporation by the Centre for Housing Planning Research at Cambridge University, indicated that many of the concerns of the people considering market housing are shared by people living in affordable housing. When it comes to the ongoing provision of new housing and the services provided to existing tenants, there are quite a few areas in which the views of the tenants of affordable housing are of special interest (Housing Corporation, 2007).

4.2.1.2: Support for Old Age

A maturing society faces one of the greatest housing challenges in the UK. By 2026, elderly people comprise almost half (48%) of the total number of households, with 2.4 million older households than there are today. It is estimated that the composition of the older age group will have changed dramatically by 2041. The percentage of the older age groups will be higher,
including people over 85; there will be a great number of older people from black and other minority ethnic groups; and the number of older disabled people will be doubled. One in five children born today can expect to live to be 100 years old (CABE, 2005).

At the present time, most of the homes and communities in the UK are not designed to meet people’s changing needs as they grow older. The housing options for older people are often restricted to care homes or sheltered housing. The Housing Corporation (2007) found the following requirements houses for old age:

- Housing should be designed with the factor of growth in mind; it has to meet the needs of all age groups. Therefore, ‘homes for life’ should be built.
- Space was naturally an important factor as it needs to lodge visiting family or people who are employed to take care of the elderly, and the house should have good storage space.
- The design of the house should be user-friendly, low-maintenance, and safe. For example, having a downstairs WC and bathroom with shower and bath is important. The home should also withstand heat.
- Along with a safe neighborhood, access to private, green space is also important; it is essential that the housing be close to good local transportation, facilities, and amenities.
- There should be access to independent information and advice about housing options.
- In order for people to continue living in their own homes, support is necessary. A reliable service for repairs and adaptations is needed for help around the home.
Most importantly, people wish to be heard and also desire to participate in the structuring of everything that will affect them, ranging from planning and lifetime homes standards to the construction of safer environments, and even the testing of new equipment and IT devices.

4.2.2: Housing Policy

The sole aim of housing policy is to cater to the whole population by providing dwellings that are adequately equipped, of appropriate sizes, have a well-functioning, good quality environment and an affordable cost. To make this main goal more of a reality and to include recent new dimensions in housing policies, it is worthwhile to list key questions (UN, 2006):

- **Access to housing**: How can the underprivileged section of the population be guaranteed access to a dwelling?
- **Affordability**: What instruments can be used to ensure that low-income households can live in dwellings of a reasonable size, so that housing expenditure does not burden their disposable income?
- **Qualitative targets**: What various instruments can be used to ensure the quality of current housing and of any new construction that will correspond to changing needs now and in the future? This concerns the quality of buildings and the housing environment.
- **Special needs**: Apart from simply the economic factors, it is important to consider the special needs of different segments of the population. These needs can include the need for housing care, i.e., sheltered and supported housing for disabled, elderly, and homeless people.
- **Combating social exclusion and supporting the social mix**: How can social segregation in residential areas be avoided?
- **Security of tenure**: Is there enough protection against eviction?
- **Tenant participation**: Methods of participation in decision-making relating to the building and the immediate neighborhood. This speaks about the apartment building’ stock in general and the rental housing stock in particular.
- **Energy savings in dwellings**: How can this factor be incorporated into the qualitative goals for dwellings?

The questions should be considered when providing sustainable and affordable housing to the public; however, it should be noted that, while all of these points are important for the success of the housing, not everything can be achieved immediately, so prioritization of goals is important. The higher-income group can easily realize the housing policy goals. This indicates that housing policy instruments should include particular support for improving housing conditions for low- and medium-income groups. There is justification for assessing the competence of housing policy according to how well it supports improved housing for those living under the most difficult conditions, i.e., “social effectiveness.” Added to this, one has to remember that no single housing policy instrument can solve all the problems. Yet, there is a range of potentially useful instruments, and combinations of them, which are suitable for different situations. The efficiency of these instruments and combinations of instruments can be assessed by examining the extent to which goals are reached.

All instruments tend to have unintentional negative side effects. For instance, if the support for consumers, which was intended to reduce housing expenditures, leads to an increased demand and an increase in prices or rents, then it will weaken the effect of the instrument or policy tool
or even worsen the situation for others in need of housing. This is “capitalization of support” (UN, 2006).

The objective of the housing policy, therefore, is that the market should function smoothly. To this end, the following points need to be considered (UN, 2006).

- **A balanced housing market:** In centers of growth, there must be enough dwellings so as to avoid unfair rent increases. Simultaneously, effort should be made to avoid a situation in which dwellings in areas with reducing populations are abandoned and their prices plummet.

- **High productivity:** The housing production system must be efficient enough that the quality/price ratio for new construction and renovation can be kept high. This needs ongoing research input, experimental construction, and real competition in the construction sector.

- **Smoothing the impact of business cycles on housing production:** One of the factors that create substantial variation in the volume of housing production and renovation is the business cycle, and this affects the efficiency of the housing production system.

- **Elasticity of supply:** The housing production system should be flexible to respond quickly to an increase in demand. Flexibility depends on various factors, including the supply of land for building and the ability of construction companies to respond to increased demand.

Social housing, which is just one of the available housing policy instruments, should be compared to the other instruments to determine the best approach in a given situation.
4.2.3: UK Future Housing Needs

In the last ten years, the UK government has made substantial progress. It was during this period of continued economic growth and stability that the state of housing improved for many people and the low mortgage rates helped a million more families to come into home ownership (CLG, 2007). But, this increase amounts to 185,000 a year, and the number of households is projected to grow at 223,000 a year, many of them people living alone (CLG, 2007).

This particular projection forced the UK government to place a new housing target for 2016 of 240,000 additional homes a year in order to meet the growing demand and address affordability issues. To meet this target, the housing supply must be increased with a total two million homes needed by 2016 and three million by 2020 (CLG, 2007).

From (CLG, 2006) Communities and Local Government sets UK policy on local government, housing, urban regeneration, planning and fire and rescue. It has responsibility for all race equality and community cohesion-related issues in England and for building regulations. Data on housing and neighbourhood conditions are analysed extensively within Communities and Local government to monitor progress towards providing better living conditions in England. Data on housing conditions also support many other cross-government policies.

The UK government is not content to build this huge project only, and it promises to collaborate with partners to provide well-designed and greener homes linked to good schools, transport and healthcare, and make homes more affordable to buy or rent (CLG, 2007). The UK government believes that a good, exact design involves more than simply appearance; it involves the
assurance that housing is flexible and attuned to the varying needs of society, even the needs of an aging population, offering better access for wheelchair users and creating more family-sized units with adequate access for baby buggies and outdoor play space. Good design offers wider benefits (CLG, 2007).

So, the UK government has established policies on housing and collected data to ensure that people’s needs are being met. Some of these data, shown in Figures 4.2 and 4.3, help private sector companies in the design stage, and because these companies are looking to profit as well, homes will be designed according to people’s needs and requirements.

Figure 4.2: People Over 65 as % of all household growth in UK (Source: (CLG, 2007))
4.3: JORDAN HOUSING

Jordan, officially known as the Hashemite Kingdom of Jordan, is a small Arab country with insufficient supplies of water, oil, and other natural resources, and with a GDP per capita of $4,900 (CIA, 2008a). General information about Jordan is shown in Table 4.2.

<table>
<thead>
<tr>
<th>Table 4.2: General Information about Jordan’s Economy and Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital</strong></td>
</tr>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>Area</strong></td>
</tr>
<tr>
<td><strong>Population</strong></td>
</tr>
<tr>
<td><strong>Population growth rate</strong></td>
</tr>
<tr>
<td><strong>Number of families</strong></td>
</tr>
</tbody>
</table>

(Source: JO.GOV, 2007)

Jordan’s economy, over the past few years, has seen booming situations across the board. Right at the forefront of the explosion stands the real estate sector, as sales (land and apartments) in the real estate market grew by 24% from 2005 to 2006. Figures of local real estate have shot up to
unexpected levels, and the ever-increasing need for housing, land, offices, hotels, and other types of real estate has created more opportunities for construction work (JO.GOV, 2007).

The Jordanian government has greatly influenced the changes in the nation’s real estate scenario. During the last five years, several new buildings, malls, and bridges have been constructed to meet the population’s growing needs. The expenditure of the government in this sector grew by 34% from about JD300 million in 2002 to slightly more than JD400 million in 2006. A rough estimate of the overall expenditures and investments in the construction sector is that they will exceed $50 billion during the coming five years according to Public Works and Housing Minister Hosni Abu Gheida (CIA, 2008a).

This recent growth spurt is attributed the joint functioning of economic and political factors. The population of Jordan has been growing at an incredible rate over the past few years, and when the majority of the population is below the age of 40, that quite naturally increases the demand for housing. This demand gets affected of the Rent Law No. 30 of 2000, which permitted landlords to turn away tenants if they did not conform to new rents that were set by contract, and this may create greater demand for purchasing since rental rates may be set high by landlords seeking to recover from the low rates of the past years (jo.gov, 2007).

The reforms and developments that took place in the mortgage market have promoted the development in this sector, too. Reduced borrowing rates have only accelerated the return on property rental or housing construction, which again increased the amount of investments in real estate, thereby creating a “buy-to-let” market. Politically, the ongoing Iraqi conflict has led to a
large number of Iraqi citizens coming in who have been buying property and renting housing in Jordan. Meanwhile, many international firms, press corps, relief agencies, and other institutions in Jordan were involved in Iraq’s reconstruction campaign (CIA, 2008a).

4.3.1: Jordan Economy

Despite political instability in the region and increasing oil prices, economic activity in the Jordanian economy has been solid. Gross Domestic Product moved at a slightly lower rate in 2006 (6.4%) compared to that in 2005 (7.2%). Still, the overall rate of growth in the last five years (2002-2006) saw an average growth of 6.3% compared to 3.2% in the period 1996-2000 (CapitalInvestments, 2007).

![Figure 4.4: Jordan’s Economic Performance (Source: (CapitalInvestment, 2007))](image)
In consumer prices, the Q1-2007 inflation rate remained at 8.2%, compared to 4.4% during Q1-2006; the reason was that prices increased significantly following the end of the first quarter of 2006, and this was followed by an increase in fuel prices. The rate of unemployment, however, dropped from 14.4% during Q1-2006 to 14.3% in the same quarter in 2007 (CIA, 2008a).

National exports rose during Q1-2007 by 15.9%, and composed 31.6% of the Q1-2007 GDP (against 30.8% during Q1-2006). At the same time, a rise of 3.5% took place in Q1-2007 imports and formed 81.8% of the GDP (against 89.3% in Q1-2006). Due to this, the balance of payments arrears reduced by 8.4% and comprised 43.2% of the Q1-2007 GDP (against 53.3% during Q1-2006). In contrast, the index of Q1-2007 industrial production remained at 145.64, compared to 145.29 during Q1-2006, which represents an increase of 0.24%. Besides, there was growth in the Q1-2007 industrial producer’s price index by 12.8% to reach 143.18 (CIA, 2008a).
4.3.2: Real Estate Industry Overview

There has been an affirmative impact by the real estate sector on the Jordanian Economy; by observing its input to the country’s GDP, it can be noted that the real estate sector has developed over the last two years. The real estate sub-sector’s contribution to GDP in 2006 rose to 6.2% from JD1,069.4 million in 2005 in order to achieve the point of JD1,135.8 million. There has been progress in the construction sub-sector also from JD382.1 million in 2005 to JD435 million in 2006 as a contribution to GDP, a growth of 13.8%. There was a simultaneous growth in both sub-sectors during the second quarter of 2007, as compared to the same period of 2006 real estate by 4.4% and construction by 7.8% (CapitalInvestment, 2007).

Table 4.3: Impact of Real Estate on the Economy

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007 Q1</th>
<th>2007 Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution to GDP</td>
<td>251.7</td>
<td>268.3</td>
<td>324.4</td>
<td>382.1</td>
<td>435</td>
<td>78.4</td>
<td>129.1</td>
</tr>
<tr>
<td>% Change</td>
<td>9.00</td>
<td>6.60</td>
<td>20.90</td>
<td>17.80</td>
<td>13.80</td>
<td>11.80</td>
<td>7.80</td>
</tr>
<tr>
<td><strong>Real Estate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution to GDP</td>
<td>873.5</td>
<td>912.4</td>
<td>960.2</td>
<td>1069.4</td>
<td>1135.8</td>
<td>293.7</td>
<td>293.9</td>
</tr>
<tr>
<td>% Change</td>
<td>1.70</td>
<td>4.50</td>
<td>5.20</td>
<td>11.40</td>
<td>6.20</td>
<td>4.60</td>
<td>4.40</td>
</tr>
<tr>
<td><strong>GDP at Basic Prices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total GDP</td>
<td>5,849.40</td>
<td>6,301.30</td>
<td>7,195.00</td>
<td>7,979.80</td>
<td>8,853.10</td>
<td>1843.7</td>
<td>2408</td>
</tr>
<tr>
<td>% Change</td>
<td>6.90</td>
<td>7.70</td>
<td>14.20</td>
<td>10.90</td>
<td>10.90</td>
<td>13.30</td>
<td>8.90</td>
</tr>
</tbody>
</table>

(Source: CapitalInvestment, 2007)

Yet, when we consider the construction sub-sector’s relative importance to the GDP on a sectoral view, it reveals that its percentage has been almost secure between the years 2004 and 2005 at 5.5%, though there was a slight raise in 2006 reaching 5.8%. The sub-sector observed a significant dip reaching 4.5% in the first quarter of 2007, though it rose to 6.3% by the second quarter gaining in its way the highest outcome since 2002. There was a gradual dip in the real
estate sub-sector from 12.2% in 2005 to 11.8% in 2006, but the sector picked up in the first and second quarter of this year, delivering 12.6% and 13.1%, respectively (CapitalInvestment, 2007).

4.3.3: Land and Apartment Selling Transactions

There has been much debate in this area in particular, and it has remained a serious topic of conversation in many meetings and casual social events. The trend of putting cash in banks has become less popular since the prospect of a better return in real estate became apparent, whether one buys an apartment or a plot of land. During 2006, a sale of 21,193 residential apartments took place, which denotes a growth of 18% from the number sold in 2005. When it comes to the number of plots sold, there was a noticeable increase of 25% from 116,319 in 2005 to 145,223 in 2006. Some derived figures reveal that, in the first half of the year, real estate sales in Jordan totaled JD2.26 billion, which is naturally a huge increase of 60% from the same period in 2006 (jo.gov, 2007).

During the first half of 2007, there was a slight rise in terms of land sales in the real estate sector due to the new project developments outside of the capital. The margin of land sales outside the capital shot up by 15% to reach 52,037 sales; nevertheless, this significant rise was equalised by a drop in land sales in the Amman Governorate by 19% reaching 21,602. In the above-mentioned period, there were 73,639 sales for this year compared to 71,943 for the first half of 2006, symbolizing a slight rise of 2.35% (jo.gov, 2007).

A check on the progress of apartment sales for the first half of 2007 shows that there has been a decline as compared to the number sold during the same period 2006; to be precise, there has
been a 13.7% decrease. Relying on statistics obtained from the Department of Land and Surveys (DLS), 9,367 apartments were sold compared to 10,856 apartments during the same period this year (CapitalInvestments, 2007).

The major foreign investors in Jordan’s real estate sector have been Iraq, Saudi Arabia, and Kuwait. If we consider the value spent in this sector for the first quarter of 2007, Iraq stood in the forefront with 60% spending JD19.34 million, and Saudi Arabia followed with 7% spending amounting to JD2.34 million. In terms of area, Kuwait has been topping the list, covering 49% in the first quarter of 2007 and coming right behind was Saudi Arabia with 22%. Bahrain followed suit surprisingly with 12%, hence pushing Iraq out of the top three in terms of area (CapitalInvestments, 2007).

4.3.4: Sustainable Development

In order to maintain sustainable development over the past ten years, Jordan has tried to enact legislation on environment and development. Yet, there are some socio-economic development plans that are incompatible with sustainability matters or the need for integrated development advances. For instance, Jordan has developed many economic laws and regulations in recent years to encourage investment and economic development and to react to economic circumstances. Notably absent from most of these laws and regulations, however, were considerations for the requirements and principles of sustainable development (HUDC, 2007).
4.3.5: Jordan Housing Background

The housing establishment was constituted by the government in 1966, while its constitution was as the direct bringing step of the government in the housing policies, and providing convenient housing for the low-income people. This establishment attempted to solve the housing crisis in Jordanian cities by building apartments and convenient housing units, and establishing nomad’s settlement projects and the government special project and occupational housing (HUDC, 2007).

The housing bank was formed in 1973 to finance building and building businesses with certain privileges through the introduction of housing loans for those who qualified with lower interest rates than commercial banks offered (HUDC, 2007). The government also formed urbanite circle developing in 1980 to perform the urbanite developing project and to improve the low and random quarters and provide the social services in Amman city. Then, its work field extended to include Al-Zarqaa, Al-Aqaba, and Arbid (HUDC, 2007).

4.3.6: Ministry Of Public Works and Housing

The Ministry of Public Works and Housing is responsible for housing affairs, through its Housing and Urban Development Corporation (HUDC), which is a governmental body. HUDC tries to aid low-income and poor citizens in two ways (HUDC, 2007):

1. By creating small housing units for very poor families; and
2. By sustaining the interest of housing loans for low-income government employees.
<table>
<thead>
<tr>
<th>Table 4.4: General Information about Housing Situation in Jordan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of houses</strong></td>
</tr>
<tr>
<td><strong>Number of occupied houses</strong></td>
</tr>
<tr>
<td><strong>Percentage of houses connected to water network</strong></td>
</tr>
<tr>
<td><strong>Percentage of houses connected to electricity network</strong></td>
</tr>
<tr>
<td><strong>Percentage of houses connected to sewage system network</strong></td>
</tr>
<tr>
<td><strong>Average area of houses (m(^2))</strong></td>
</tr>
<tr>
<td><strong>Average area per capita per house (m(^2))</strong></td>
</tr>
<tr>
<td><strong>Average yearly need of housing units</strong></td>
</tr>
<tr>
<td><strong>Number of housing bank loans</strong></td>
</tr>
</tbody>
</table>

(Source: HUDC, 2007)

**4.3.7: The Pioneering Projects for the Poorest Families**

The pioneering projects grew directly out of the Jordanian government’s efforts to help the poor. The HUDC used local workers directly from the area so as to provide residents with work opportunities, and carried out two projects – one of them in Al-Zarqaa governorate and the other in Al-Aqabaa (HUDC, 2007). Therefore, the readymade housing project is considered one of the pioneering projects in Jordan, and the housing units created for poor families usually cater to those families. Figure 4.6 shows a Jordanian readymade house.

The term “housing satisfaction” usually explains the degree of satisfaction experienced by an individual or family when it comes to the current housing situation (McCray and Day, 1977). Consequently, families feel content enough to occupy a governmental 70-m\(^2\) house because such houses are comparatively much better than the places where they used to live.
4.4: BEST VALUE IN HOUSING

Currently, the market is highly competitive, and so fast-changing global economy organizations have been forced to think about, and sometimes adopt or practice, a large range of novel management philosophies, approaches, and techniques (Dorsch and Yasin, 1998). It is pretty much the same with public sector organizations, too. The best value structure encourages public sector organizations to help attain promising partnerships and modern approaches in the delivery of local services. The main attraction of these reforms is the introduction of the best value administration, which came into action in England and Wales in April 2000. The requirement to propose defined activities to compulsory competitive tendering (CCT) was eliminated in January 2000 (Martin and Hartley, 2000) under the provisions of the 1999 Local Government Act. CCT was replaced by the best value regime, and bestowed upon public sector organizations an official responsibility duty to offer optimum value services, service quality and value for money to council-tax payers and local businesses (Bowerman et al., 2001; Ogden and Wilson, 2000). The best value system aims at the development of performance management in public-sector
organizations away from what is now considered the restraining climate that functioned under CCT. In order to get the best value in public sector organizations, benchmarking is one of the recommended tools of government reform that helps in the supervision and control of productivity and quality, focusing on internal and external stakeholders (Ogden and Wilson, 2000; Ball et al., 2000).

Best value, actually, is the finest combination of whole life cost and quality (as is apt for the purpose) to meet the requirements of the users, as it is the relationship that happens between long-term costs and the advantage gained by clients that represents value for money (Office of Government Commerce, 2003).

The concept of best value has been welcomed internationally, yet there is no universal definition of the term ‘best value’ or ‘value for money’ (Choi, 1999), and, due to this uncertainty of terms, several different definitions have been formed by various government bodies, client organizations, and academic researchers. A few of the definitions of best value are listed below (cited in Phillips, 2007):

- The evaluation of time, cost image, ascetics/appearance, operation and maintenance, safety, and environmental aspects are all elements of best value (Gransberg and Ellicott, 1996 & 1997);
- The goal is to obtain the optimum combination of price and technical solution for the public (Molenaar and Johnson, 2003);
• Any selection process in which proposals contain both a price and qualitative components, and the award is based upon a combination of price and qualitative consideration, is a best value selection (Design-Build Institute of America, 1999);

• Best value means the maximum achievable outcome from the development of an infrastructure project (Zhang, 2006).

The international use of best value has had its share of problems. A study of the use of best value to design/build contracts in the United States showed that there is no particular method for achieving technical proposals in the contractor selection process (Molenaar and Johnson, 2003), and also that the best value tender selection process is one of perception rather than substance (Mickaliger, 2001). If the best value process is handled with inexperience, it would result in legal challenges to the system (Shane et al., 2006). Public sector stakeholders in New Zealand seem to be taking a careful view concerning best value simply because there is no specific definition of the term and because they wonder if value for money should be equated with affordability (Hale and Cochrane, 2004). The difficulties faced in the United States and New Zealand have a certain importance with the legal problems that have come up in the UK.

Comparatively, the private sector has been seen as more proficient than the public sector (Smyth, 1997), but with the application of quality improvement models the standards of public service could be increased without any increase in public spending (Erridge et al., 1998). It has become clear that quality management is the solution to the main criticism of public services, inefficiency, wastefulness, and remoteness from those to whom they cater (Walsh, 1994). Researchers of quality have stated that savings can be realised by decreasing errors and checks,
and they have emphasised customer-driven quality, which would erase feelings of remoteness. The emergence of a quality agenda in the public sector is important for both individuals and society as a whole.

The local government is both well established and well known, owing to the many services (protection, welfare, and convenience) that it provides at the local level, whether directly or indirectly, so it can influence the lives of many at some stage (Davidson and Grieves, 1996) by pointing out the need for a quality improvement plan and suitable strategies to provide the highest-quality services.

4.4.1: Best Value in UK Social Housing Sector Procurement

In the UK, the provision of social housing is controlled mainly by two specific groups of organizations: the first is the housing provided and managed by local authorities (commonly called “council housing”), and the second is the housing provided and managed by housing associations and other organizations, which together form the “voluntary housing movement.” The Housing Corporation takes care of the welfare of these housing associations; it is a central, government-financed body created to encourage and assist the development of housing associations. “Registered social landlord” (RSL) is a term used in a collective form for both housing associations and local authorities as providers of social housing (Phillips et al., 2008).

RSLs are customary acquiring clients to the construction industry, and, in 1998, the Egan report recognised that their corporate strategy and operational procedure could be influenced and controlled by government policy so that these organizations could be utilised as crucial drivers
for the working of best value and procurement of partners in the UK construction industry. Positive steps have been taken by the government to ensure that the public sector adopts value-based procurement. Hence, on April 1, 2000, legislation was enacted requiring the local authorities in England and Wales to use the best value process over all public services they control and to review, develop, and achieve regular improvement with respect to their procurement strategies in regard to their efficiency, effectiveness, and economy (Phillips et al., 2008).

Local authorities are specifically directed towards the implementation of partnering or long-term collaborative working methods through the National Procurement Strategy (ODPM, 2002). Similar instructions were issued by the Housing Corporation so that housing associations would aim to bring forth regular, continuous improvements and true value for money in their services from the use of best-value techniques. These could involve challenging what they do, comparing themselves with others, conferring with those people affected by their services, and offering the services at competitive standards and prices. According to the principles of best value, the wishes of residents and others should be balanced against available resources within a clear and obvious framework (Housing Corporation, 2005).

The proclamation from the Housing Corporation and the alteration in legislation have led to a significant removal from traditional lowest bid tendering and the ushering of new variables into the decision-making process. Those attributes that symbolize value to a particular client on a specific project must be identified, and this awakens the need to evaluate those vital that components the contractor/bidder must offer and deliver (e.g. zero-carbon technology), on a non-
monetary basis in order to add value to a project and enhance quality of service so that it qualifies as non-cashable efficiency gains (CIH, 2006). Ideally, service users and stakeholders should be practically involved at all stages of the procurement and service design/delivery process so as to help them to put into effect informed choices regarding project cost and quality (Housing Inspectorate AC, 2005).

4.5: COMPARISON

This section compares UK housing and Jordanian housing with that of Kuwait. This chapter begins with information on housing needs provided by the governments of both of these countries. In both the UK and Jordan, the government meets the housing needs of low-income people by providing affordable housing. In the UK, housing is also provided to meet the needs of older people in addition to those with low incomes. Jordan particularly focuses its housing projects on the low-income segment of society. In both of these countries, the government also provides special housing schemes through which low-income people can afford a home.

4.5.1: Comparisons between Housing Strategies in Kuwait and the UK

The increasing housing demand is challenging the governments of Kuwait and the UK; there are more than 88,000 families on the waiting list in Kuwait (PAHW, 2011), and, in the UK, the housing stock is 185,000 a year, but the number of households is projected to grow at 223,000 a year (CLG, 2006). In response, both governments established new plans to solve this problem, supported by a strong economy. The figures show that the problems will be solved if the plans are implemented.
During the next 10 years, as mentioned earlier, the Kuwaiti government intends to build six modern cities containing more than 125,000 residence units, which will cover the backlog of applications as well as future applications. In contrast, the UK government is planning to build approximately three million residence units by 2020. It should be considered that the population of Kuwait is approximately one million people (MOP, 2008), whereas the population of the UK is about 60 million (UK.GOV, 2006); that means:

- Regarding the population of Kuwait, the percentage of residence units that would be built by the Kuwaiti government is 12.5% of the population.
- In the UK, the percentage of residence units that would be built is only 5% of the whole population.
- The amount of residence units to be built by the UK government is 24 times more than those by the Kuwaiti government.
- The Kuwaiti government will build 1.6 times more than that total number of residence units completed so far (i.e. 72,000 units), and, therefore, the yearly distributed house average will jump from 1,500 to 12,500 houses.
- In the UK, housing units are distributed for a specific group of people (i.e. low-income people), and other people can go directly into the market and choose the house they want according to their financial status and need; however, in Kuwait, the government is responsible for housing all people by distribution of government houses, flats, and plots, and there are no conditions for getting a government house; both low- and high-income families have the housing option they prefer.
These figures show that, as the Kuwaiti and UK governments strive to complete massive projects for their people, they will have to consider the housing design to ensure that they provide reasonable homes and avoid the mistakes that have been made in the past. In fact, the UK government bases its project on three main demands (CLG, 2006):

- The growing demand for more homes;
- The growing demand for well-designed and greener homes linked to good schools, transportation, and healthcare; and
- The growing demand for more affordable homes to buy or rent.

The UK government encourages the participation of the very best designers by promoting design competitions to bring leading-edge standards to the eco-towns, and plans to offer designs that meet all people’s needs, including children, older people, and disabled people (CLG, 2006). In Kuwait, on the other hand, the decision maker designs the unit depending on his own perspective and understanding of the needs and requirements (Mahdi et al., 2006).

4.5.2: Comparisons between Housing Strategies in Kuwait and Jordan

In Kuwait, the Public Authority for Housing Welfare (PAHW) is the government department responsible for building housing for those who are eligible; each married person is entitled to go to that association and choose the kind of house he or she prefers (PAHW, 2006).

In Jordan, the Ministry of Public Works and Housing, through its Housing and Urban Development Corporation (HUDC), is the governmental body responsible for housing affairs (HUDC, 2007). HUDC presently tries to support its low-income and poor citizens in two ways (HUDC, 2007):
1. By constructing small housing units for very poor families; and
2. By paying or subsidizing the interest of housing loans for low-income government employees.

4.5.2.1: Mode of Receiving Houses – Kuwait and Jordan

In Jordan, families usually get houses through their own efforts. To get a house, employees in the government and the private sector usually obtain a long-term banking loan. HUDC supports the interest of housing loans only for low-income government employees and for the construction of small housing units for very poor families (HUDC, 2007). Based on how citizens get their housing investment from the government, they can choose their house.

In Kuwait, the mode of receiving the houses is much different. Citizens are rarely involved and have very little choice in the selection of the houses. Once a city with government readymade houses is ready, based on the application date and availability of the houses, the citizens are called for allocation of the houses on a first-come-first-served basis. In other words, if 3,000 government readymade houses are ready, the first 3,000 on the waiting list are selected and called to meet for house allocation. The PAHW applies a lottery system through which the citizens are given a number, and these numbers are selected at random. The ones that get called initially get a better choice, because they have the entire selection of houses and locations to choose from. Citizens whose numbers are called towards the end of the process have limited choices. Unlike the UK and Jordan, citizens in Kuwait are not provided the chance to physically see the houses and locations before making a choice. The location and design of the houses are known only a few hours before citizens are called for selection. This limited choice into the
selection of the houses is considered one of the main reasons for dissatisfaction with the Kuwait government’s readymade houses.

In Jordan, the government offers this choice only to poor families (HUDC, 2007). According to McCray and Day (1977), ‘housing satisfaction’ refers to the degree of contentment experienced by an individual or family with regard to the current housing situation. Poor families typically feel happy to occupy the government-supplied 70-m² houses because those houses are quite a bit better than the places where they used to live.

So, in sum, the Jordanian government distributes readymade houses to poor families, and because those people are satisfied, no modifications are made after getting the house. On the other hand, the Kuwaiti government has no conditions for receiving a readymade house, and both low- and high-income families have the right to choose this kind of house (PAHW, 2006).

4.6: SATISFACTION WITH READYMADE HOUSES IN KUWAIT

In Kuwait, customer satisfaction plays an important role in avoiding the need to make changes to readymade houses. In addition to adding the black concrete framework option, PAHW has tried to keep up with new technology in the house-design domain and new styles of building (Al-Saeed, 2007). Al-Khaiat et al. (2005) believe that the concrete framework, or “partially constructed houses system,” will solve the rebuilding problem and shorten the waiting period for people who are waiting for housing.
4.7: SUMMARY

This chapter discusses housing in the UK and Jordan in comparison to housing in Kuwait. Aspects related to best value and customer satisfaction are also discussed. The most complex issue in housing policy is how to ensure, in the most useful way, the satisfactory development of housing for low-income and generally disadvantaged households. Affordable housing is considered in the UK to be a key instrument in this context next to, for instance, the housing allowance system.

It is worth noting that the role of affordable housing is not limited to concerns regarding the quantitative shortage of housing or affordability problems. There are other related concerns, such as the need to enhance the quality of buildings and housing environments, to motivate energy savings, to combat segregation, to raise the productivity level of the building sector, and to smooth out business cycles in housing production.

Within affordable housing policies that are followed in the UK and Jordan, focus is on the low-income people and those who cannot construct or purchase their own houses, such as the disabled and elderly. In Kuwait, however, the housing efforts undertaken by the government are for the all citizens of Kuwait. In addition to this, most citizens are wealthy and, therefore, their expectations for the houses are much higher than those of people in the UK and Jordan. Also, as mentioned before, the UK and Jordan conduct specific studies of end-users to understand their housing needs. In the UK, private companies work with government agencies to provide housing. There, houses of different designs and specifications are designed, and customers can visit various houses and choose the one that suits them best. In addition to the internal design of
the house and its specifications, neighbourhood needs and other amenities needed by the residents are also taken into account by the government so that the house satisfies each customer’s particular needs.

Kuwait does not provide such wide choices to its customers. Once the houses are constructed and the entire city is ready, then eligible customers are called and, through a lottery system, the houses are distributed. It is only a few hours before distribution that customers are notified about the designs of the house, and only when their numbers are picked by the lottery do they learn where their houses are located. Therefore, the choice is extremely limited, and there is hardly any interaction with the PAHW. Since all land belongs to the government, the citizens are left with no choice of purchasing land either. Very rarely do some owners sell a house to someone else. In short, the citizens of Kuwait depend totally on the government for their housing needs, but the government is unable to satisfy its customers.

The next chapter is research methodology and data collection, it discusses the various methodologies used in the study. The study focused on gathering data from the residents of Kuwait’s Fahad Al-Ahmad City and the PAHW.
CHAPTER 5: RESEARCH METHODOLOGY and
DATA COLLECTION
5.1: INTRODUCTION

A research study sets out to collect, organize, and summarize information about the subject being studied; in doing so, it aims to make complex theories more comprehensible. To answer research questions, a literature review approach is the best strategy. A literature review of all aspects of Value Engineering helped to provide a detailed understanding of this approach and its application to the construction of housing.

The aim of this chapter is to discuss the research methodologies used to achieve the study’s objectives, such as quantitative and qualitative, deductive and inductive, usage of questionnaires and interviews, and case study design. The study focused on gathering data from the residents of Kuwait’s Fahad Al-Ahmad City and the PAHW. The collection of empirical data was conducted during four phases, and it included mixed methods. Figure 5.1 shows the structure of Chapter 5.

![Figure 5.1: Structure of Chapter 5](image-url)
5.2: LITERATURE REVIEW SOURCES

The literature sources can be divided into three source types – Primary, Secondary and Tertiary – as shown in the Figure 5.2. The ones used in this study will be discussed in the subsequent sections.

![Figure 5.2: Literature sources](Source: (Saunders et al., 2003))

5.2.1: General Reports

General reports are those published by market researchers (Saunders et al., 2003). For this study, such reports that related to economic and housing construction were collected from Global Investment House (GIH).
5.2.2: Conference Reports

The author has attended some conferences pertaining to value engineering and housing projects. These would be available directly from the conference reports or through publications.

5.2.3: Government Publications

These are reports published and released by the government (Saunders et al., 2003). In this case, the information came from the government of Kuwait.

5.2.4: Secondary Literature Sources

Other sources of theoretical data collection have included Internet searches, newspapers, books, and articles. These contributed to the information that was compiled to form the literature review.

5.2.5: Tertiary Literature Sources

This is one of the primary areas where data were collected. Electronic libraries, such as Emerald, Engineering Village 2, ProQuest and ScienceDirect, were the tertiary sources of data collection.

5.3: EMPIRICAL STUDY

Empirical research constitutes a very important aspect of this study. Data pertaining to housing in Kuwait were collected from the Kuwaiti sample population for various data analyses. These will be discussed in the subsequent chapters.
5.3.1: Deductive Approach

The deductive method is a method whereby the researcher uses existing theories on a single subject and creates a solid foundation for the study. It is in such way that the researcher designs the questions for collecting the empirical data. Using these questions in a questionnaire survey format, the researcher collects empirical data. Results from the empirical data are then analysed in relation to the existing literature knowledge to draw conclusions (Hyde, 2000). According to Saunders et al. (2003), the deductive research follows the following:

- Abides by scientific principles
- Moves from theory to data
- Explains casual relationships between variables
- Utilizes a collection of quantitative data
- Applies controls to ensure validity of data
- Involves operationalization of concepts to ensure clarification of definitions
- Uses a highly structured approach
- Provides researcher with independence as to what is being researched
- Selects samples of sufficient size in order to generalise conclusions

5.3.2: Inductive Approach

In an inductive approach, general conclusions can be drawn from empirical findings. This kind of method is commonly used when there are very few established theories in the area of research (Hyde, 2000). According to Saunders et al. (2003), the inductive research approach involves the following:
• Gaining an understanding of the meanings that humans attach to events

• Developing a close understanding of the research context

• Collecting qualitative data

• A more flexible structure that permit changes of research emphasis as the research progresses

• The realisation that the researcher is part of the research process

• Less concern with the need to generalise

In other words, the deductive approach is the approach whereby the researcher starts from theory and moves towards empirical findings (reality); whereas, in an inductive approach, the researcher starts with empirical findings (reality) and moves towards literature to form a theory. Once the theory has been formed, the researcher may again follow the deductive approach to prove or disprove the theory. In this study, the deductive approach proved most useful.

5.4: RESEARCH DESIGN

The research design discusses the methods and methodologies that have used in this research to collect the primary data from the respondents of Fahad Al-Ahmad City and PAHW. In addition, the findings were discussed with experts in the field of engineering, construction, and housing. The research adopts both quantitative and qualitative methods in collecting the primary data. Data were collected through the use of questionnaires in the case of the quantitative method as a survey. Questionnaires were also used in the case of interviews to ensure consistency in the interview sessions with each respondent since the interviews were conducted on an individual basis.
Five components of research design are important for case studies (Yin, 1994):

- Questions in the study
- Related propositions
- Unit(s) of analysis
- Reasons that connect the data to the plans
- Conditions for interpreting the findings

A particularly problematic issue in case study research is how to construct validity. This has become a point of criticism due to its subjective nature. It was proposed by Yin (1994) that there are three remedies to counteract this: 1) making use of multiple sources of evidence, 2) creating a line of evidence, and 3) having a draft case study report checked by key informants. The point of concern in causal (explanatory) cases is internal validity. This occurs as a problem of "inferences" in case studies and can be handled by making use of pattern matching. External validity is useful when dealing with the assessment of whether the results are capable of being generalised beyond the immediate case. Single-case studies are the main source of criticism against case studies in this area; yet, this criticism is directed at the statistical analyses and not the analytical generalization, which is actually the foundation of the case studies.

The following sections discuss the different methods and approaches that have been used to collect and analyse the data.
5.5: TYPES OF DATA

Data types can be classified into two main categories – Quantitative and Qualitative.

5.5.1: Quantitative Method

Quantitative research seeks to quantify the data and typically applies some form of statistical analysis (Malhotra et al., 1996). It follows a structured method of data collection. The results of the analyses are followed with recommendations. The aim of the quantitative approach is to isolate the variables and identify their effects on the study. Results are compared through a measurement scale. This provides a clear ability to see numbers and statistical results. Quantitative research is an inquiry into an identified problem, based on testing a theory, measured with numbers, and analysed using statistical techniques. The goal of quantitative methods is to determine whether the predictive generalizations of a theory hold true. Quantitative methods use numbers and statistics to understand and explain the data that are collected and the results they suggest (Dobbin and Gatowski, 1999).

5.5.2: Qualitative Method

Qualitative data can be approached either from a deductive or an inductive perspective. Qualitative data are in the form of words rather than numbers and can be described as attractive. They are also associated with concepts that are characterised by their richness and fullness (Saunders et al., 2003). Qualitative data have implications on both the collection of data and their analysis. The qualitative process of inquiry has the goal of understanding a social or human problem from multiple perspectives. Qualitative research is conducted in a natural setting and involves a process of building a complex and holistic picture of the phenomenon of interest.
Unlike the quantitative approach, qualitative research uses descriptive methods and categories. It is designed to gather people’s experiences and feelings. The sample sizes used in a qualitative approach are usually smaller than those used in the quantitative approach because the data usually are collected through direct interaction with the respondents. These interactions can be one-to-one, in focus groups, or in behavioural surveys (Dobbin and Gatowski, 1999). Qualitative methods follow an approach based on a grounded theory and inductive reasoning (Saunders et al., 2003). Table 5.1 describes the two research methods of data collection. The questionnaire, which is a tool for data collection, was designed using both of these approaches.

<table>
<thead>
<tr>
<th>Point of Comparison</th>
<th>Qualitative Research</th>
<th>Quantitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated phrases</td>
<td>Quality (nature, essence)</td>
<td>Quantity (how much, how many)</td>
</tr>
<tr>
<td>Objective</td>
<td>Understanding, description, discovery, hypothesis generating</td>
<td>Prediction, control, description, confirmation, hypothesis testing</td>
</tr>
<tr>
<td>Philosophical roots</td>
<td>Phenomenology, symbolic interaction</td>
<td>Positivism, logical empiricism</td>
</tr>
<tr>
<td>Design characteristics</td>
<td>Flexible, evolving, emergent</td>
<td>Predetermined, structured</td>
</tr>
<tr>
<td>Setting</td>
<td>Natural, familiar</td>
<td>Unfamiliar, artificial</td>
</tr>
<tr>
<td>Data collection</td>
<td>Researcher as primary instrument, interviews, observations</td>
<td>Inanimate instruments (scales, tests, surveys, questionnaires, computer programs)</td>
</tr>
<tr>
<td>Mode of analysis</td>
<td>Inductive (by researcher)</td>
<td>Deductive (by statistical methods)</td>
</tr>
<tr>
<td>Findings</td>
<td>Comprehensive, holistic, expensive</td>
<td>Precise, narrow, reductionist</td>
</tr>
<tr>
<td>Sample</td>
<td>Small, non-random, theoretical</td>
<td>Large, random, representative</td>
</tr>
</tbody>
</table>

(Source: Saunders et al., 2003)
5.5.3: Pilot Study

A pilot study is a miniature version of the actual study and is intended to check the standard of the questionnaire that will be used in collecting the data. Saunders et al. (2007) stressed the importance of the pilot study in helping to refine the questionnaire so that the respondents have no difficulty in answering. A small group of known people was used to conduct the pilot study. This set of respondents was asked to provide feedback on the easiness of understanding the questionnaire, the usage and importance of the different variables, the overall design of the questionnaire, and any other comments that would make the questionnaire stronger and ensure useful answers from the respondents. In other words, an assessment of the questionnaire was conducted to ensure its reliability and validity.

In this research, copies of the questionnaire, which was designed for both quantitative and qualitative empirical data collection, were sent to a set of respondents. The first phase was the survey method in which questions were designed in a multiple-choice format. These questions were sent by email to 10 people, who were asked to provide feedback on the questionnaire with regards to the ease of understanding the questions and the ease of answering. Based on the responses provided by these 10 pilot study respondents, the questions were modified and finalised. Once this step was completed, the questionnaires were distributed by hand to the residents of Fahad Al-Ahmad City who had opted for government houses or for plots to build their own houses.

In the interviews, pre-designed questions were used to maintain consistency. These questionnaires were also sent to a select group of seven pilot study respondents to gain their understanding of the questions. Although most of the interviews were conducted in the Arabic
language, it was important to understand the ease of the questionnaires. Based on the feedback, the questionnaires were finalised and used in the interviews.

5.6: QUESTIONNAIRES

The design of the questionnaire will affect the response rate and the reliability and validity of the data collected. Response rates, validity, and reliability of the questionnaire can be maximised by careful design, clear layout, lucid explanation, pilot testing, and careful planning (Saunders et al., 2003). Figure 5.3 shows the various ways of data collection that use of questionnaires.

![Diagram of questionnaires]

Figure 5.3: Types of data collection methods that use of questionnaires (Source: (Saunders et al., 2003))

In this study, the questionnaire was the main tool for data collection. This was done through both self-administered and interview methods.
5.6.1: Types of Interviews

Data can be collected in various ways, one which is through the use of various interview methods, as discussed below (Saunders et al., 2003).

5.6.1.1: Structured interviews

In a structured interview, the interviewer asks specific questions with the aid of a questionnaire. The structure is not altered (Saunders et al., 2003).

5.6.1.2: Semi-structured interviews

Semi-structured interviews are similar to structured interviews, but the interviewer can divert from the original structure by asking related and unanticipated questions not originally included in the form (Saunders et al., 2003).

5.6.1.3: Telephone interviews

This type of interview is less expensive in time and money than personal interviews. With these interviews, information can be gathered quickly. Interviewees have to be informed about the purpose of, and need for, the interview; and the interviewer must ensure that the questions are short, prompt, and focused (Saunders et al., 2003).

This study used a combination of semi-structured, unstructured personal, and telephone interviews. The semi-structured interviews were conducted with the aid of pre-designed questionnaires.
5.7: JUSTIFYING CASE STUDY METHOD

The decision as to which method to use depends on the mode of the research problem. An argument was made by Morgan and Smircich (1980) that, depending on the nature of the social phenomena to be explored, the actual suitability of a particular research method can be derived (Noor, 2008).

In case studies, there can be both single- and multiple-case designs. The single-case study design is of use when there is a need to confirm or challenge a theory or to represent a particular or extreme case (Yin, 1994). Single-case studies also are useful for revelatory cases in which an onlooker can access a phenomenon that was previously not accessible. Careful investigation is required for single-case designs in order to avoid misrepresentation and to increase the investigator's access to the evidence. The studies can be either holistic or embedded, the latter of which occurs when there is more than one unit of analysis involved in the same case study. Multiple-case studies follow a replication logic. Yet, this kind of study should not to be confused with sampling logic, in which a population is chosen for inclusion in the study. It should be said, though, that this type of sample selection is inappropriate for use in a case study. Every individual case study deals with a "whole" study in which facts are derived from various sources and, from the facts, respective conclusions are drawn.

Case study research calls for selecting a few examples of the phenomenon to be studied and then intensively investigating the characteristics of those exemplary “cases.” In the process of explaining what a case is, Yin (1994) suggested that the term actually hints at an event, an entity, an individual, or even a unit of analysis. It is a practical inquiry that explores a present-day
phenomenon inside its real-life context, making use of multiple sources of evidence. By closely examining a relatively small number of cases and comparing and contrasting them, the researcher learns about significant features of the phenomenon and how it varies under different circumstances.

Robson (2002) defined a case study as “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence.” This strategy will be of particular interest if the researcher wishes to gain an extensive understanding of the context of the research and the processes being enacted. The case study strategy also has considerable ability to generate answers to the questions of why, what, and how although the latter two questions tend to be of more concern in the survey strategy. Various data collection methods may be used, including questionnaires, interviews, observations, and documentary analyses.

Saunders et al. (2007) argued that a case study can be a very worthwhile way of exploring existing theory. In addition, a simple, well-constructed case study can enable the researcher to challenge an existing theory and provide a source of new hypotheses. Yin (1994) further established that a case study investigator must be capable of functioning as a senior investigator while performing the data collection. It is essential to have a training period that begins with a definition of the problem and the progression of the case study design. This might not be necessary if there is only a single investigator. The aforesaid training would cover those facts that the investigator would need to know, such as the motive for the study, the type of evidence
being sought, and what discrepancies might be expected. This could be done as discussions rather than formal lectures.

Case studies are concerned with how and why things happen, which allows the analysis of contextual realities and the variations between what was planned and what actually happened (Anderson, 1997). A case study is intended to focus on a particular issue, feature, or unit of analysis. In this research, a case study was utilised to understand the prevailing problem with the Kuwaiti government’s readymade houses. Through the use of the case study, problems that the homeowners are facing with the government readymade houses were gathered. Case studies help to understand the nature of the problem and solutions taken by the homeowners themselves to make the government readymade houses more suitable to their needs.

While using the survey instrument, case study protocol (i.e. procedures and general rules) should also be kept in mind. The protocol is to be developed just before the data collection phase; it is a must in a multiple-case study, and it is desirable in a single-case study. The protocol was presented by Yin (1994) as a major factor in ensuring the consistency of the case-study research. A proper protocol is considered to have the following parts:

- A synopsis of the case study project (objectives, issues, topics being investigated)
- Field methods (credentials and access to sites, sources of information)
- Questions of the case study (related questions that the investigator must have in mind during the data collection)
- A guide for the case study report (outline, format for the narrative)
The synopsis addresses the general topic of the investigation and the reason for the case study. For the most part, the field procedures comprise data collection issues and must be properly formatted. The investigator does not have the situation of data collection under his or her control (Yin, 1994), as in other research strategies; so, here, the procedures become all the more important. During the usually open-ended interviews, the subject's schedule must state the activity (Stake, 1995). Careful plans must be made in regard to obtaining entry to the subject’s organization, having adequate resources while in the field, proper data collection activities, and providing for unexpected events. The investigator must be able to answer questions about the case study and must remind subjects of the data to be collected and its probable sources. Often, the guide for the case study report is ignored, but case studies do not follow the same, uniform outline as other research reports do. It is important to plan this report according to its development in order to avoid problems later.

Case studies have been criticised by some due to their lack of scientific rigor and reliability as well as their failure to address the issues of generalizability (Noor, 2008), but case studies have their own strengths. For instance, they help researchers to achieve a holistic view of a particular idea or series of events and provide a big picture since many sources of evidence are used. Case studies also allow generalizations, since the results of the findings from multiple cases can lead to some form of replication.

For this research, questionnaire survey and archival documentation have been adopted to use as a source of data within the case studies, for examining the opinion of the homeowner, and points of the representative, about ready-made houses distributed by PAHW.
5.8: DATA COLLECTION METHODS AND PHASES

The empirical data were collected in four phases, and quantitative and qualitative approaches were used, involving data collection and interview methods that included email, hand-delivery, face-to-face interviews, and focus groups.

5.8.1: Phase 1: Questionnaire survey within Fahad Al-Ahmad City

Within this phase, residents of Fahad Al-Ahmad City were identified who had chosen plots and government houses. Two sets of pre-designed questionnaire survey forms were designed, one for end-users who had chosen plots and one for end-users who had chosen government houses. These were distributed to the respondents, and the feedback that was received was entered into SPSS statistical software for analysis.

5.8.2: Phase 2: Interviews with Fahad Al-Ahmad residents

The respondents, who participated in the quantitative survey, and other Fahad Al-Ahmad residents, were contacted for face-to-face interviews. The interviews were conducted based on their phase 1 responses and the results obtained from the SPSS analysis.

5.8.3: Phase 3: Interviews with PAHW representative

The interviews with PAHW were with selected representatives; department heads, project managers, and engineers were selected and contacted for the interview. Interviews were conducted in the PAHW offices. These were busy people, so it was not easy to get appointments. The waiting period for the interviews was longer than expected. Important information pertaining to the assignment of the government house and plots was collected.
Important information regarding the design of the houses, VE techniques and usage, advantages and disadvantages of government houses and plots, and much more was collected from various PAHW representatives. This information is discussed in the respective sections, along with the quantitative and qualitative responses of the end-users.

5.8.4: Phase 4: Interviews with senior managers of PAHW

This was the final section of the empirical data collection. Senior managers of the PAHW were contacted based on dates they have suggested for the interview; these managers were then met in their offices, and interviews were conducted there. Data were recorded on paper. The managers were asked to speak freely on the topics of discussion. This data was added to the existing data analysis and findings. The second round of interviews focused on the how the current situation can be improved through the use of the suggested VE Job Plan.
5.9: SUMMARY

This chapter discusses the various types of methodologies used in research. In this study, the author used a combination of quantitative and qualitative approaches for the collection of data. The target population was limited to those in Fahad Al-Ahmad City, Kuwait. Data were gathered from this population through pre-designed questionnaires.

The next chapter covers the analysis of data collection and discusses the results.
CHAPTER 6: DATA ANALYSIS AND DISCUSSION
6.1: INTRODUCTION

This chapter discusses the empirical data that were collected from respondents who had chosen the option of government houses and plots. Analysis begins with the respondents’ demographics, followed by detailed analysis on the responses collected using the pre-designed questionnaire survey forms. As stated earlier, the Kuwaiti government is responsible for providing housing for all Kuwaiti families, and each family has the right to register with the Public Authority for Housing Welfare (PAHW), the government association for housing people in Kuwait, to receive housing. PAHW provides three basic options to the citizens – flats, government houses, and plots. Kuwaiti nationals rarely choose flats, and of the remaining two options, plots are the more popular.

The waiting period for getting a government house or a plot is 8-18 years, while the waiting period for a plot is typically on the long side of this range. Government housing is provided with various options, and the government ensures the use of the best fittings for the houses. Figure 6.1 shows a typical government house. For those who select plots, a housing loan of KWD 70,000 is provided for construction.

Figure 6.1: Government House

Figure 6.2: Sample of plots
Although the government uses the best construction materials, good fittings, and good designs, the government houses do not seem to suit or satisfy end-user requirements. Therefore, end-users generally modify government houses to meet their requirements and preferences. Usually, these modifications are done immediately after the houses are received, and materials and fittings used by the government to build the houses are removed and replaced at the end-users’ expense. In some cases, the reconstruction is extensive, such as adding a third floor, making changes to exterior of the house, and replacing the main door (Figure 6.3). In the case of plots, the amount of KWD 70,000 seems insufficient to construct a house that meets end-users’ requirements, so these citizens must use additional money from their personal investments to complete the construction.

Further, the choice of receiving a government house or a plot after such a long waiting period is distasteful to citizens. After the completion of a new city, PAHW informs people based on their application date, and those who qualify for housing will be a mix of people who have chosen a government house or a plot. Most of the new cities that are located close to populated areas with various facilities are limited to government houses. Although plots are the first preference of
most applicants, they will often accept a government house that is immediately available when no more plots are available simply to avoid having to wait even longer.

The analysis in this chapter will identify the process of receiving the houses and plots, the options (i.e. government house or plot) applied with PAHW, the modifications that citizens make, the cost incurred in making the modifications, and many other important aspects related to the choice of government house and plots and end-users’ level of satisfaction.

6.2: STUDY PHASES

This is the empirical chapter in which the data that were collected from the respondents in Fahad Al-Ahmad City are analysed and discussed. As discussed in the research methodology chapter, data were collected in four phases:

- Phase I: Quantitative data from end-users
- Phase II: Interviews with end-users
- Phase III: Interviews with PAHW personnel
- Phase IV: Second round of interviews with PAHW personnel

6.3: GOVERNMENT HOUSE ANALYSIS

Two quantitative surveys were conducted, one of which was the government house survey. These surveys were given to citizens who had opted for government houses.

6.3.1: Demographic Analysis of Respondents

6.3.1.1: Gender Analysis of Government House Respondents

The demographic analysis included data on gender, age, marital status, occupation, qualification, monthly income, dependents, and disabled family members.
From Table 6.1 and Figure 6.4, it is apparent that the majority of respondents were males. In general, Kuwait is a male-dominated culture. Especially when it comes to family needs and requirements, males are the decision makers. Therefore, the results confirm this thesis.

During the interviews, end-users were asked why they thought most of the respondents were males. Similar responses were received from all the respondents; therefore, a cumulative reply is provided here.

The Kuwaiti tradition is very much upheld in all respects and is male-dominated; almost every aspect of personal and official life is handled by the men. Women are confined to the responsibilities of the day-to-day affairs of the house. It is only in the past few years that women have begun to participate in activities outside the house and made their debut in politics. Choosing a house or a plot is a one-time decision in life, and such important matters are definitely seen as the male’s responsibility. Women come into the picture only when they are
widowed. Even then, registration with PAHW is done in the name of the male. Women are aware of this tradition from the beginning, and these major responsibilities are the men’s responsibility since it is assumed that men know more about houses than women.

6.3.1.2: Age Analysis of Government House Respondents

Table 6.2: Age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>31-40 years</td>
<td>33</td>
<td>56.9</td>
</tr>
<tr>
<td>41-50 years</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>50+ years</td>
<td>2</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Table 6.2 and Figure 6.5 analyse the age range of the respondents. Age groups considered in this study were broken down into the categories of 20-30 years, 31-40 years, 41-50 years, and above 50 years. Most respondents belonged to the age group of 31-40 (56.9%), followed by the group 41-50 (31%). In regard to most respondents being in the 31-40 age group, the following is what the end-users had to say. Their responses were similar, so the replies are accumulated here.
An application for a house can only be submitted to the PAHW after marriage. Males usually get married between the ages of 22-26. The waiting period for the house/plot is commonly 12-15 years. Thus, when the house or plot is received, the men are in the 31-40 age range.

6.3.1.3: Analysis of the Marital Status of Government House Respondents

Table 6.3: Marital Status

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>55</td>
<td>94.8</td>
</tr>
<tr>
<td>Separated</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>Widow/Widower</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

House needs become important after a person gets married. The usual age range of marriage in Kuwait is 22 and above. Considering the long waiting period, the results obtained indicate that many people who provided data had recently received their houses or plots, so they were able to provide accurate, up-to-date data regarding government houses.

The marital status (Table 6.3) data showed that 94.8% of the respondents were married. According to Kuwaiti rules and regulations, only married people can apply for housing welfare. Thus, the fact that 94.8% of the respondents were married was considered to be a positive factor.
for the outcome of this study. With a mean of 1.7 and mode of 1, it is evident that married respondents provided most of the data. In regard to 94.8% being in the married group, the responses received in the interviews were the same from all respondents. One can apply for a house from the PAHW only after being married.

6.3.1.4: Analysis of the Occupational Status of the Government House Respondents

Table 6.4: Occupation

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee</td>
<td>30</td>
<td>51.7</td>
</tr>
<tr>
<td>Responsible</td>
<td>15</td>
<td>25.9</td>
</tr>
<tr>
<td>Free business</td>
<td>6</td>
<td>10.3</td>
</tr>
<tr>
<td>Retired</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2</td>
<td>3.4</td>
</tr>
</tbody>
</table>

In comparison with other demographics, the respondents’ occupational status (Table 6.4) was also important because it could be considered a factor that influences the choice of a house and whether changes in the house will be made or not. Among the respondents, 51.7% were employees, and 26% were managers with responsible jobs.
6.3.1.5: Analysis of the Educational Qualifications of the Government House Respondents

Table 6.5: Qualification

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4</td>
<td>6.9</td>
</tr>
<tr>
<td>Secondary</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>Diploma</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>University</td>
<td>23</td>
<td>39.7</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Ph.D. degree</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

According to Table 6.5 and Figure 6.8, it is evident that most (39.7%) of the respondents had a university degree, and 31.0% of the respondents had a diploma, indicates that the majority the people reporting their choices were in the University category.
6.3.1.6: Analysis of the Monthly Incomes of the Government House Respondents

Table 6.6: Monthly Income

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than KWD 500</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>KWD 500-1,000</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>KWD 1,001-1,500</td>
<td>26</td>
<td>44.8</td>
</tr>
<tr>
<td>KWD 1,500-2,000</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>More than KWD 2,000</td>
<td>5</td>
<td>8.6</td>
</tr>
</tbody>
</table>

Figure 6.9: Monthly income histogram

Based on the analysis in Table 6.6 and Figure 6.9, it can be observed that 44.8% had a salary in the range of KWD 1,000 to 1,500.

Respondents who took part in the survey were contacted for interview. They were asked if monthly income was an important criterion in choosing government houses. The homeowners who took part in the survey earned a monthly salary between KWD 1,250 and 2,400 and had education levels ranging from secondary school to University degrees.
From a cumulative point of view, it was indicated that monthly income could be considered a factor in choosing a government house. A trend between highly wealthy people and individuals who earn a mid-range salary was observed. Wealthy people can be classified into two categories with regards to opting for either plots or government readymade houses. Individuals who are financially well-off tend to wait for plots so that they can build the house to their specifications. Another set of wealthy individuals will opt for government houses to get a house in a shorter time and then make extensive changes to accommodate their own specific requirements and preferences. The modifications that were indicated including the addition of a third floor, extending rooms to make them larger, changing fixtures in the bathrooms and kitchens, changing the external layout of the house to make the house look different and larger, constructing a larger Deewaniya, repainting, and changing the doors and windows. Many of the people interviewed said that when the overall modifications were completed, the house would look very different from the house provided by PAHW. Therefore, it was apparent that these wealthy people only selected the government house option in order to obtain a house more quickly.

People with mid-range income, who cannot afford to build from scratch, tended to choose government readymade houses provided by PAHW and then make minimal, necessary modifications so that the house will suit their needs. The modifications were limited and may not be as extensive as those mentioned earlier. Changes here included painting, changing of fixtures in bathrooms and kitchen, and a few other modifications that were compatible with the income level of the family. On the other hand, a few house owners felt satisfied with the houses that PAHW provided, and since the houses suited their families of 4-5 members, no considerable changes were made.
Based on the feedback provided, it was understood that government house modifications were based mainly on two factors – income and period of receiving the house. The extent of modifications was affected by the income and reason for choosing government housing by people who are financially well-off pertained to the waiting period as government houses were received over a period of 8-14 years, whereas the waiting period for plots was around 10-18 years.

According to Mohammed Alsalman (2009) of PAHW, it was revealed that, “without any criteria or selection barrier, any Kuwaiti national can apply for a government house with the PAHW.” Recent news reports have indicated that special focus is given to applicants’ income level. This was of concern because people with high income or wealth would want their house to look much different from the houses of those with lower income or wealth. Currently, the designs that the PAHW offers are common to everyone without any discrimination. But, in this case, discrimination was found to be essential as a way to avoid having the government and the end-users incur significant expenses by modifying the government-supplied houses.

### 6.3.1.7: Analysis of Number of Dependents of Government House Respondents

<table>
<thead>
<tr>
<th>Table 6.7: Dependents</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Persons</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>3-4 Persons</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>5-8 Persons</td>
<td>32</td>
<td>55.2</td>
</tr>
<tr>
<td>More than 8 Persons</td>
<td>11</td>
<td>19.0</td>
</tr>
</tbody>
</table>

Based on responses in Table 6.7, the maximum number of occupants in the family ranged from 5 to 8 persons. One of the necessities of having a large home can be derived from this output.
Respondents who took part in the survey were contacted for interviews and were asked if the number of rooms and the size of the rooms were adequate in the government houses.

People with seven or more dependents, in addition to servants and drivers, typically found the government readymade houses inadequate. It was indicated that even if the house met current needs and requirements, it would be inadequate when the male children grow up and marry. This is because they and their spouses would be staying with the parents. This is part of tradition and, in addition, after the male dependents get married, they will have to wait 8-15 years to receive either readymade houses or plots of their own. Therefore, the number of rooms and the sizes of the rooms were considered inadequate by respondents who had large families. According to respondents with less than 6-7 members, they were satisfied with the number of rooms provided in the government readymade houses.
The design of the house in terms of room location was also found to be inadequate. According to the respondents, the ground floor had only one bedroom and the remaining bedrooms were placed on the top floors. Many respondents stated that distributing the bedrooms equally across the floors or providing 2 or 3 bedrooms on the ground floor would have been better.

Therefore, it can be gathered that government housing, in terms of size and number of rooms, is satisfactory for a family with 6-7 dependents with drivers and maids; whereas, for a family that has more than 7 dependents as well as drivers and maids, the government house is inadequate, especially in the long run when the male children marry and bring their wives to the house for 8 to 15 years until they can get their own house.

6.3.1.8: Analysis of Handicapped Family Members for Government House Respondents

Table 6.8: Handicapped members

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>94.8</td>
</tr>
</tbody>
</table>

Table 6.8 shows that 94.8% of the respondents had no disabled people in their families. Therefore, the presence of disabled family members cannot be offered as the reason for modifications or other requirements.

6.3.2: In-depth Analysis

In this section, various questions, such as type of option applied in PAHW, type of modifications done, and other aspects, are analysed and discussed in detail.
6.3.2.1: Analysis of Option Applied with PAHW

Table 6.9: Type of option applied with PAHW

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plot</td>
<td>46</td>
<td>79.3</td>
</tr>
<tr>
<td>Government house</td>
<td>11</td>
<td>19.0</td>
</tr>
<tr>
<td>Flat</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Table 6.9 shows the type of options respondents had requested from the PAHW. Analysis shows that, even though only 19.0% of respondents had applied for government houses, 100% owned a government-built house.

6.3.2.2: Analysis of Waiting Period for Receiving a Government House

Table 6.10: Waiting period

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-8 years</td>
<td>4</td>
<td>6.9</td>
</tr>
<tr>
<td>9-12 years</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>More than 12 years</td>
<td>46</td>
<td>79.3</td>
</tr>
</tbody>
</table>

Based on the analysis of Table 6.10, the waiting period for a house is usually over 12 years. It is expected that an applicant should get a house after waiting 12 to 15 years.

Waiting period is one of the main concerns for all citizens who applied for housing options with the PAHW. This is because the waiting period for government readymade houses ranges from 8-14 years and the waiting period for plots is between 10-18 years. Respondents who have received their houses and plots in Fahad Al-Ahmad City were asked to comment on the waiting period.
From both the quantitative analysis and interviews with homeowners, it was found that the preferred choice of most citizens was a plot. It was further indicated by the respondents during interviews that many of them had changed their choice due to the long waiting period. The waiting period has affected citizens in different ways. Most people preferred plots because it enabled them to build the house to their own specifications.

On a positive note, the respondents generally reacted favourably to the locations of the government readymade houses. In most cases, these houses were located close to already developed areas that had all the facilities required by the residents; however, in some cases with plots, they were in remote areas where the residents had to travel a long distance to reach their offices or to purchase supplies for personal needs. According to a few respondents, the location of the new cities where the housing was being built was an important factor in selecting a housing option, so they often abandoned their first choice of a plot and selected government readymade houses instead.

Apart from the waiting period, the reason for changing options from plots to government readymade houses was indicated as personal. Two respondents indicated that they had wanted to stay close to their relatives. For example, one of the brothers who had applied for the housing option did not qualify for the plot as his application was recent, whereas the elder brother was due to receive a plot because he had submitted his application a few years earlier. Nevertheless, the brothers wanted to stay together, so the elder brother decided to change his choice from a plot to a government readymade house. Since everyone is receiving their houses based on the lottery approach, it is almost impossible to acquire houses that are side by side or in a specific location that the applicant may prefer. So, the citizens sometimes attempt to exchange the location of
their house through personal means, and, in some cases, this is very expensive. As has been indicated, since the plot owner wanted to stay close to his brother, he had to give up the plot without remuneration to an individual who had received a government readymade house near his brother’s house.

Therefore, in a few instances, the need for switching was personal, but in most cases, the applicant switched from the primary selection of plots to government houses due to the length of the waiting period. PAHW allows citizens to make multiple choices in case they wish to change their decisions, as was the case in the instances discussed here.

6.3.2.3: Analysis of Location of the House within the Fahad Al-Ahmad City Area

Table 6.11: Location of house in the area

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the head of the street</td>
<td>17</td>
<td>29.3</td>
</tr>
<tr>
<td>Near the head of the street</td>
<td>12</td>
<td>20.7</td>
</tr>
<tr>
<td>In the middle of the street</td>
<td>29</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Based on Table 6.11, 50.0% of the respondents said the houses they received from PAHW were located in the middle of the street. This was followed by 29.3% who stated that their houses were located at the head of the street.

6.3.2.4: Analysis of Method of Receiving the House in the Current Location

Table 6.12: How the house in the current location was received

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through lottery</td>
<td>46</td>
<td>79.3</td>
</tr>
<tr>
<td>Exchange of location with somebody else</td>
<td>12</td>
<td>20.7</td>
</tr>
</tbody>
</table>

As is evident in Table 6.12, 79.3% of respondents stated that they received their house at the current location by default when PAHW used the lottery system of assigning houses; however,
20.7% of respondents exchanged their location with other people. According to general observation, most people preferred to receive a house on the corner of the street (the head), because this location provides a little more land area that can be converted into a private area for the occupants or a playground. Since the demand for corner houses is high, some people who receive corner houses through the lottery exchange them with others for large sums of money. Further, the design of the house can be a basis for people making such exchanges. These are some of the main reasons for the exchange of house locations.

The citizens were asked further questions regarding the location and the mode of receiving the house from PAHW. If the citizen selects a readymade government house, there are a few different designs from which to choose. Respondents indicated that sometimes the location is more important to them than the specific design of the house, so they may choose a less desirable design in order to get the location they prefer. This is because they know they can change the design of the house after they receive it. Therefore, the location of the house was identified as an important factor. The choice of location is on a first-come-first-served basis. Those whose numbers are called first get a better choice because all the locations are available. As more and more people take the desired locations, the choices obviously become limited. The importance of location was evidenced by the fact that a few residents paid more than KWD 20,000 as an exchange fee. People prefer their location to be at the head of the street where it is easily seen and accessible. In addition, being at the head of the street provides a little extra land at one end of the house. This land is not large enough to build another house, so it is left as is by the government. Residents are not supposed to use this land for their own purposes because it is government property, but residents often use it for various things, such as a playground for the children and parking cars. In some cases, family mosques are even constructed there.
Clearly, location is of great importance, and there are people who pay large sums of money to exchange with other residents for the ideal location. The option of allotting houses by a lottery has not been found to be positive for the citizens. In addition, government readymade houses often fail to meet citizens’ needs, so the dissatisfaction level with the housing provided by the government of Kuwait and PAHW is very high among the citizens.

From the responses provided, it was found that most people prefer their house to be located at the head of the street, but the option of receiving a house in the desired location is not left to the end-user or the PAHW. The allocation of houses and their locations are determined by lottery. End-users who are lucky can choose their location, whereas others have little or no choice. People who are unhappy with the location and who have the money will try to arrange an exchange with others. Often, the design of a house at the head of the street may be different from the house that was chosen, and therefore further modifications will be done and more money expended. In other words, the responses here indicate that the location of the house is more important to people than the design or the money required to exchange locations.

Further information was provided through an interview with PAHW representative Eng. Salah Almishwat (2009) regarding the process of applying for and receiving a house. He stated that the process consists of the following steps:

1- Apply to PAHW: The process begins with application to the PAHW, Kuwaiti nationals who are married have to register with PAHW and indicate their preferred option (flat, house, or plot).
2- Wait until the application date is announced publically: After a lengthy waiting period (12-15 years), people who have registered with PAHW are notified and called for selection.

3- Choose from the available project areas (cities): During this public announcement by PAHW, registered members are notified about the open area and the options available there. Based on availability, members confirm or change their options. It has been observed from the empirical quantitative survey of end-users that members sometimes change their options based on availability. This is due to the lengthy waiting period of 12-15 years, so people whose first preference was a plot may change their choice to a government house or vice versa to avoid waiting longer.

4- Through a lottery, home locations in the city are assigned: The option of receiving the house is not left to the end-user or the PAHW. Once a city is ready, people who are qualified to receive a house are notified of the city location and the options available there. People who like the location of the new city make their interest known, and their names are put into a lottery. On a specified date and at a specified time, people are called, and the lottery system is used to draw and call the numbers. The first 10 are considered lucky because they can choose any house or location within the selected area. As the number of people who have made selections increases, the availability of locations and designs diminishes. People have to make the best of whatever they receive from the lottery.
### 6.3.2.5: Analysis on Reasons for Choosing a Government House

#### Table 6.13: Reasons for choosing a government house

<table>
<thead>
<tr>
<th>Reason</th>
<th>Scale</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting period is less than for a plot</td>
<td>No</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>Somehow</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td></td>
<td>I agree more</td>
<td>7</td>
<td>12.1</td>
</tr>
<tr>
<td>It covers the needs and the desires of the family</td>
<td>No</td>
<td>22</td>
<td>37.9</td>
</tr>
<tr>
<td></td>
<td>Somehow</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>I agree more</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Suitable location</td>
<td>No</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>Somehow</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td></td>
<td>I agree more</td>
<td>24</td>
<td>41.4</td>
</tr>
<tr>
<td>Monthly portion of government houses is less than the portion of plots</td>
<td>No</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td></td>
<td>Somehow</td>
<td>33</td>
<td>56.9</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>I agree more</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>Suitable for me and my family after making minor modifications</td>
<td>No</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>Somehow</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>28</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>I agree more</td>
<td>9</td>
<td>15.5</td>
</tr>
<tr>
<td>Avoid construction problems</td>
<td>No</td>
<td>16</td>
<td>27.6</td>
</tr>
<tr>
<td></td>
<td>Somehow</td>
<td>28</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>10</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>I agree more</td>
<td>4</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Table 6.13 Reasons that strongly and somewhat contribute to choosing a government house

**Reasons for selecting government housing**

- One of the first reasons given for choosing a government house was the shorter waiting period compared to a plot. According to 55.2% of the respondents, this was one of the major reasons they chose a government house.
- Suitability of the location received a higher percentage of 72.4% and was considered the major reason for selecting a government house.
- 63.8% of the respondents agreed that the suitability for them and their families after making minor modifications was another major contributor towards choosing a government house.

**Reasons that somewhat contributed to the selection of a government house**
- The ability of the government house to meet the needs and desires of the family was somewhat considered as one of the reasons by 43.1% of the respondents.
- The monthly portion of government houses being less than that of plots was given as a reason of moderate importance by 56.9% of the respondents.
- According to 48.3% of the respondents, avoiding construction problems was a reason that factored somewhat in choosing a government house.

**6.3.2.6: Analysis of PAHW Taking User’s Opinions about Design of Government Houses**

<table>
<thead>
<tr>
<th>Did the PAHW take your opinion about the design of the house?</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>No</td>
<td>56</td>
<td>96.6</td>
</tr>
</tbody>
</table>

One of the most important factors of this study is to understand whether PAHW sought the end-users’ opinions about the design of government housing. According to 96.6% of the respondents, PAHW did not.

The PAHW representatives were asked about the designs of the houses and how the designs were being changed for new projects. The design changes are intended to ensure that the houses are consistent with the latest designs and also to ensure customer/citizen satisfaction, but the changes were not based on collecting adequate data from the users. One of the problems that has been found in PAHW’s collection of data was its failure to identify which citizens are eligible to receive the housing options. Data should be collected from people who are going to receive the houses rather from the general public. The general public has observed that PAHW has not
provided satisfactory designs for the readymade houses, therefore, the participation and feedback in the survey will be affected negatively.

According to a PAHW representative, it was indicated that the house designs have been changing over time, but the changes are negligible. These changes pertained to the addition of small rooms, such as servant rooms and a few exterior details.

**End-user Interview Question:** With regards to taking end-user surveys and understanding their needs relative to the new house and its design, more than 96% of respondents stated that their feedback was not requested by PAHW.

In the interviews that were conducted, all respondents stated that their opinions had not been requested by PAHW. Furthermore, the survey results indicated that the respondents were interested in being heard by PAHW. The end-users feel that, if end-users were identified and their opinions were requested, the houses would be more to their expectations. It was recommended by the respondents that end-user feedback should not come from the general public but rather from people who are to receive the houses. For this, PAHW should identify those who are interested in receiving government houses among the total population of people who are eligible. If this task were undertaken responsibly by the PAHW, it would result in higher satisfaction levels among the end-users.

End-users were also mentioned that the PAHW design department has experienced employees on their staff with good knowledge who, if provided with the right end-user requirements, would be
able to design more satisfactory houses. If they did so, more people would be interested in government readymade houses than in building their own through the plot option. According to one of the end-users, PAHW should change its process and use an appropriate scientific method to identify eligible end-users and those who wish to receive government readymade houses. This should be followed by scientific methods of gathering data and providing different housing options based on end-user feedback, and changes requested should be seriously considered so that the respondents know they are being heard and the requested changes are being taken seriously. One respondent indicated that although this was a good option, if it were not implemented properly, it would not yield appropriate results.

### 6.3.2.7: Analysis of Government Housing Fulfilment of Needs of Handicapped Family Members

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>34</td>
<td>58.6</td>
</tr>
<tr>
<td>Somewhat</td>
<td>16</td>
<td>27.6</td>
</tr>
<tr>
<td>I Agree</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>I Agree Strongly</td>
<td>3</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Table 6.15 provides insight into whether government houses meet the needs of handicapped family members. According to 58.6% of the respondents, the government houses used a standard design, and there were no special construction options to meet the needs of handicapped family members. Among the respondents, 27.6% stated that some of the features of government housing can meet the needs of handicapped people. Obviously, the needs of handicapped members vary, so the design requirements also differ.
**End-user Interview Questions:** In addition to providing standardised houses that meet end-user expectations, the government needs to consider the needs of elderly and handicapped family members. Homeowners in Fahad Al-Ahmad City were asked if the PAHW took any initiative to provide houses for people with special needs.

On this matter, there were differences of opinion. A few respondents stated that the needs of handicapped people were completely neglected; PAHW does not even take the initiative to provide homeowners with houses that meet their expectations, so how would they know what the requirements of handicapped people are? Other responses indicated that the people felt PAHW only focused on needs that exist in all homes, so making design provisions for the handicapped was the least of PAHW’s concerns.

The percentage of families with special needs is limited, so the PAHW does not consider this as a special requirement.

6.3.2.8: **Analysis of the Partial Modifications Done to Government Houses Immediately Upon being Received by End-Users**

Further analysis was conducted to understand if the respondents made partial modifications to their houses, and it was found that partial modifications were done in 62.1% of the cases. With a mean of 1.37 and a mode of 1, this choice was further proven.

<table>
<thead>
<tr>
<th>Table 6.16: Partial modifications in the house</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freq.</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>
**End-user Interview Question:** Among the respondents, 62% had made some kind of changes to the houses immediately upon receiving them. They were asked if they thought this percentage was excessive or acceptable and why they thought the end-users made such changes immediately upon receiving their houses.

Almost all of the respondents agreed that the percentage of people who made such changes was quite large. Nevertheless, it was also indicated that such changes are to be expected, since most people were dissatisfied with the government readymade houses. As one respondent said, everyone has her or his own taste in the design of the houses. Homes are not built every day, so people would want the designs and specifications to match their every need. Therefore, some kinds of changes are expected from each of them. Considering this, the 62% could be considered small rather than large.

In addition to personal preferences, many other reasons were given for the changes. One reason was the long waiting period for a plot, which leads some people to choose a government house instead and then modify it to suit their needs. However, this approach requires the end-user to spend a lot of money on renovations, sometimes as much as KWD 20,000. It was also indicated that the government provides interest-free loans of KWD 70,000 to people who opt for plots for construction of the house. Even this was indicated to be inadequate, and people had to add an additional amount of KWD 20,000-60,000 to complete the house to their satisfaction.

In addition to the long waiting period, the design’s failure to meet end-user requirements was indicated as another reason for making changes to the houses immediately after receiving them.
People with adequate income had larger requirements, such as building a third floor, installing elevators, adding rooms, and expanding the Deewaniya. In addition to these changes, lighting and fixtures were changed by nearly all respondents, irrespective their incomes.

Judging from the overall response received, there were two major reasons for making changes to the houses immediately after receiving them. One is selecting government readymade houses due to the longer waiting period for plots, and the other is that those who have opted for government readymade houses have found them to be inadequate for their needs and desires.

6.3.2.9: Analysis of why modifications were not made to government houses

Further analysis was conducted in an effort to understand the reasons why some respondents had not made any changes to their houses.

Table 6.17: What are the reasons why you did not make modifications to your government house?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly income doesn't allow</td>
<td>11</td>
<td>50.0%</td>
</tr>
<tr>
<td>The law doesn't allow</td>
<td>1</td>
<td>5.0%</td>
</tr>
<tr>
<td>Absolutely satisfied with the design and the shape of the house</td>
<td>10</td>
<td>45.0%</td>
</tr>
</tbody>
</table>

This question aimed to understand if they were satisfied or if other reasons contributed to their decision to accept the government house as designed. As Table 6.17 shows, 50.0% of respondents cited their limited income as their reason, this indicated that the respondents’ choice was based on their income limitations.
6.3.2.10: Analysis of obtaining PAHW’s permission before modifying the government house

Table 6.18: Did you obtain the agreement of PAHW before making modifications to your government house?

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>8.3%</td>
</tr>
<tr>
<td>No</td>
<td>33</td>
<td>91.7%</td>
</tr>
</tbody>
</table>

Based on the results shown in Table 6.18, 91.7% of the 36 respondents who made modifications did not obtain the permission of PAHW before implementing the changes. This indicates that modifications are done based on individual needs and desires and that PAHW was not officially aware of these changes.

*End-user interview questions*

To make changes to government readymade houses immediately after receiving them, the end-users had to get permission from the PAHW. This is especially important when the changes are considerable, such as making the rooms larger, building a third floor, and adding extensions. If these kinds of changes are not handled properly, that could lead to serious damage to the house in the short or long run. Construction companies would only take this as a one-time business opportunity and therefore may not even educate the homeowners about the potential consequences. This failure to inform the homeowners could be intentional or due to a lack of knowledge on the part of the contractors.

With regards to obtaining PAHW’s permission, it was indicated that hardly anyone does this. The process is lengthy, and permission may ultimately not be granted. Therefore, hardly anyone was interested in obtaining PAHW’s permission. It was also indicated that, in most cases, PAHW was aware of the changes since many of these changes were made to the exterior of the house where they easily could be seen. Yet, the PAHW never intervenes, and almost everyone
knows this. Therefore, this is another reason why citizens have no interest in informing PAHW of the changes or seeking the necessary permission.

According to a few of the respondents, some of the changes cause no problems with the structure of the house, so PAHW’s permission was not required. It was evident from these views that end-users determine the extent of damage to the house based on their limited knowledge of construction. According to end-users’ feedback, it was understood that people feel that making modifications to the house is a routine affair and PAHW’s permission is not required. In addition, seeking PAHW’s permission requires extensive paperwork and time. Therefore, end-users go ahead and do the modifications without notification from PAHW that they can proceed.

6.3.2.11: Analysis of Type of Contractors that Made Modifications to the Government Houses

<table>
<thead>
<tr>
<th>Table 6.19: Who made these modifications for you?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accredited engineering company</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>External contractor</td>
</tr>
</tbody>
</table>

According to 63.9% of the respondents, they relied on external contractors to make the modifications.

**End-user Interview Questions**

It was stated by 64% of respondents that they relied on external contractors to carry out the changes to their new houses. When respondents were asked why they dealt with external contractors of their choice and not the ones approved by PAHW, the respondents said that choosing PAHW-accredited contractors was not an easy process because most of them were
busy and would take a long time to respond. One of the main reasons for not working with accredited contractors was cost. Compared to other contractors, the costs of PAHW-accredited contractors were considerably higher, so homeowners worked with private contractors who could do the work at the lowest costs. Therefore, it can be gathered that cost was the main component rather than the experience and knowledge of the contractor.

The choice of contractors should be careful, as indicated by one of the respondents. This is because there are many contractors in the market, and some have one or two people who know the job to a certain extent and the others are labourers. These companies could be looking to gain a name in the market and therefore would take these jobs at a lower cost than other experienced companies and do a temporarily satisfactory job. In the long run, these jobs would create problems in the house that may be more expensive to repair than it would have been to get a professional job done in the first place. Most homeowners neglected this fact, though, due to their lack of construction knowledge and their focus on the short term.

The problem of choosing private companies based on cost considerations was stressed by others as well. One of them quoted an example of a contractor who removed a column with the intention of extending the room, and, in the process, caused the roof to collapse. This small modification led to a major disaster and the loss of large sums of money.

Cost seems to the major factor in choosing the type of contractor. Accredited companies can do the job efficiently and in a more timely manner than private companies, but private companies
are cheaper. For small modifications, private companies seem acceptable, but for major modifications, it is better to use accredited companies.

6.3.2.12: Analysis of the Cost Incurred for Modifications of Government Housing

Table 6.20: How much money did you spend on modifying your house?

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>KWD 5,000</td>
<td>7</td>
<td>19.4%</td>
</tr>
<tr>
<td>KWD 5,001-10,000</td>
<td>13</td>
<td>36.1%</td>
</tr>
<tr>
<td>KWD 10,001-20,000</td>
<td>15</td>
<td>41.8%</td>
</tr>
<tr>
<td>More than KWD 20,000</td>
<td>1</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

According to Table 6.20, most of the modification expenses were between KD 10,001 and 20,000. This was followed by 36.1% where modifications were between KD 5,001 and 10,000. These numbers indicate that the modifications were extensive and residents were willing to spend large sums of money to make the house meet their needs. It is important for PAHW to understand these modifications, since most of them could be incorporated into the existing or new designs.

End-user Interview Questions: Modifications require large amounts of money. Respondents were asked to comment on these expenses incurred by the end-users for modifications.

According to one respondent, the amount of KWD 12,000 to 20,000 cannot be considered large because there have been instances in which people have taken down entire houses and built new ones in their place. These were people who wanted to receive houses earlier and were unwilling to wait a few more years for a plot. Another reason was the location of the city and the house within the city. As discussed earlier, these were also important factors in selecting a house.
According to another respondent, the problem is not related to the amount being spent but to the challenge of ensuring that the modifications do not result in harm to the residents.

Further, it was indicated that these changes are not just the expenses borne by the homeowners, but also by the government indirectly. This is because the residents are destroying the design that the government paid for, thereby creating a loss to the government. One respondent indicated that it would be of greater benefit to the general public if the government would spend this wasted money on building hospitals and schools.

The need for changing the house to satisfy the end-user was justified by many people who disliked the interior decoration, lighting, fixtures, paint colours, doors, and windows. These are some of the most noticeable details of the house, so the homeowners remove the existing features and install ones that they prefer. Respondents suggested that PAHW should take an interest in finding out end-users’ needs and then building houses based on their needs and requirements.

From an overall point of view, modifications to the house that are within the KWD 20,000 limit are considered common and expected because the houses do not meet the end-users’ expectations.

6.3.2.13: Identifying the Type of Modifications Made to Government Housing

The table below groups the positive and negative factors involved in the respondents’ decisions to make changes in their government houses.
<table>
<thead>
<tr>
<th>Modification type</th>
<th>Scale</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>External shape</td>
<td>Yes</td>
<td>11</td>
<td>30.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
<td>69.4</td>
</tr>
<tr>
<td>Electrical work</td>
<td>Yes</td>
<td>32</td>
<td>88.9</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4</td>
<td>11.1</td>
</tr>
<tr>
<td>Sanitary work</td>
<td>Yes</td>
<td>21</td>
<td>58.3</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>15</td>
<td>41.7</td>
</tr>
<tr>
<td>Woodwork</td>
<td>Yes</td>
<td>14</td>
<td>38.9</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>22</td>
<td>61.1</td>
</tr>
<tr>
<td>Aluminium work</td>
<td>Yes</td>
<td>13</td>
<td>36.1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>23</td>
<td>63.9</td>
</tr>
<tr>
<td>Painting &amp; decoration works</td>
<td>Yes</td>
<td>34</td>
<td>94.4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>5.6</td>
</tr>
<tr>
<td>Adding a building (e.g. expansion of the salon)</td>
<td>Yes</td>
<td>8</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>28</td>
<td>77.8</td>
</tr>
<tr>
<td>External work</td>
<td>Yes</td>
<td>17</td>
<td>47.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>19</td>
<td>52.8</td>
</tr>
<tr>
<td>External metallic door</td>
<td>Yes</td>
<td>17</td>
<td>47.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>19</td>
<td>52.8</td>
</tr>
<tr>
<td>Adding a third floor</td>
<td>Yes</td>
<td>3</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>33</td>
<td>91.7</td>
</tr>
<tr>
<td>Removal of internal walls to expand rooms</td>
<td>Yes</td>
<td>9</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>27</td>
<td>75.0</td>
</tr>
<tr>
<td>Removal of a column to expand a room</td>
<td>Yes</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>36</td>
<td>100.0</td>
</tr>
<tr>
<td>Changing 100% (destruction of the house then</td>
<td>Yes</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>construction of a new one)</td>
<td>No</td>
<td>36</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 6.21 discusses the various immediate modifications that were performed to the government houses. ‘Immediate changes’ are those made by end-users immediately after
receiving the houses from PAHW. Results have been sorted from high to low based on the changes made. High percentages go to painting and decorations (94%) and electric work (89%). These are followed by sanitary work (58%), external metallic doors (47%), and woodwork (39%). With most of the people making such modifications, it can be gathered that end-users commonly modify the sanitary work and the carpentry work. Such modifications may also be difficult for PAHW to track and provide necessary recommendations on.

While we have focused on the modifications that the majority of end-users conducted, it is also important to consider and highlight the other types of changes that were done by lower percentages of the respondents. Adding a building (22%), removing a wall for internal space and expansion (25%), and adding an extra floor (8.3%) are important factors that should be investigated, especially if these changes are random. If these changes are being done with the prior permission of PAHW, what are the reasons? If these reasons are valid, are they being taken into consideration by PAHW for future design changes? If these changes are not known to PAHW, should the government investigate them? There are various reasons for these changes that should be investigated.

End-user Interview Question: End users were asked to provide more detail about the reasons why various changes were made immediately after the houses were received.

From most of the responses that were received, it was understood that the changes pertain to the finishing of the house. The house should look impressive and the homeowners, residents, and everyone else should be impressed with the look of the house. Therefore, the common work done
is usually painting, decorating, and improving lighting and fixtures in the bathroom and kitchens. Electrical work and sanitary work also contribute to the expenses incurred in making modifications.

As indicated by two respondents, the changes are limited only by the income of the homeowner. If the homeowner earns an average income, the changes will be limited. On the other hand, high-income homeowners will make more comprehensive changes.

6.3.2.14: Analysis to Determine Whether Homeowners Would Make a Different Choice if They Could Choose Again

Table 6.22 indicated whether respondents would choose a government house if they were given a second chance to choose.

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>21</td>
<td>36.2</td>
</tr>
<tr>
<td>No</td>
<td>29</td>
<td>50.0</td>
</tr>
<tr>
<td>I don't know</td>
<td>8</td>
<td>13.8</td>
</tr>
</tbody>
</table>

According to respondents, 50.0% would not choose government housing if they could choose again. This was followed by 36.2% who stated that they prefer to remain with government housing, and the rest (13.8%) stated that they were not sure.

End-user Interview Question: It was indicated by the quantitative analysis that over half of the respondents indicated that they would not choose government readymade houses if given a
second chance. Reasons and opinion about this were gathered from the respondents from Fahad Al-Ahmad City.

Respondents stated almost unanimously that they would not choose government readymade houses if provided a second chance. As discussed earlier, these houses do not meet end-users’ expectations, and dissatisfied homeowners have to make changes immediately after receiving the houses after having waited for 8-14 years.

As indicated by one respondent, the first thing on everyone’s mind is to settle down in their own home as soon as possible, but it is only when the house is received that the homeowners realise the extent of the work that is required. Then, the thought of settling down is postponed until the house can be modified to meet their needs and expectations. Some of these changes are large, time-consuming, and disruptive and therefore cannot be done after the house is occupied. Therefore, considering the disappointment and the extent of changes and costs involved, it is understandable that people would opt for plots and take the responsibility of constructing the house from scratch rather than depending on government readymade houses.

### 6.3.2.15: Analysis of the Option Respondents Would Choose if they had a Second Chance

<table>
<thead>
<tr>
<th>Option</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government house</td>
<td>10</td>
<td>17.2</td>
</tr>
<tr>
<td>Flat</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Plot</td>
<td>39</td>
<td>67.2</td>
</tr>
<tr>
<td>Concrete framework (if available)</td>
<td>9</td>
<td>15.5</td>
</tr>
</tbody>
</table>
Based on the analysis of their second choice, respondents opted for plots rather than government houses. This could indicate their dissatisfaction with the houses, which was also evidenced by the amount of money they spent for modifications.

End-user Interview Question: The concrete framework is an option that was tested by the PAHW with an aim of providing satisfactory housing to the citizens of Kuwait. This option was termed ‘black concrete framework,’ since only the skeletal structure of the two-storey building was provided. The remaining work, such as the interior, painting, fixtures, and fittings must be undertaken by the end-users with their own contractors. PAHW believed that, since most people were dissatisfied with the type of fixtures and fittings used in the houses, this would be a successful alternate solution; however, the black concrete framework was unsuccessful and has been discontinued.

From the feedback received through personal interviews with the residents of Fahad Al-Ahmad City, it was evident that they did not consider this to be a good option. The dissatisfaction of the end-user was not just related to the type of fixtures and fittings that were being used; these were only some of the many changes that were being done to the house. It was explained further that people wanted the rooms to be larger and more numerous, based on the size of each family. Most families are large and have at least 8-10 people when the maid and drivers are included. As the children grow and the male members get married, they remain in the same house until they are able to get their own home, which could take many years. When a skeletal framework is provided, the needs of larger and more numerous rooms cannot be achieved.
Further, most citizens need a basement and a third floor. Once the black concrete framework is in place, building a basement may be impossible, and the end-user would still have the responsibility of constructing a third floor. In light of all this, the citizens feel that it is better to opt for plots and take care of the entire construction from beginning to end rather than choose an option that requires nearly the same time, effort, and cost. These were the reasons identified by the respondents of Fahad Al-Ahmad City that most people opted for plots rather than the ‘black concrete framework.’ Therefore, this option has been discontinued by the PAHW.

6.3.2.16: Analysis to Understand if Respondents would be willing to Pay the Government to Modify Government Housing to their Needs

Table 6.24: If the government were to design houses according to the citizen's needs and wishes, and each citizen had the right to choose additional characteristics, such as a basement, third floor, more attractive external shape, or an elevator, would you agree to pay for these additions?

<table>
<thead>
<tr>
<th>Scale</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>7</td>
<td>12.1</td>
</tr>
<tr>
<td>Somewhat</td>
<td>16</td>
<td>27.6</td>
</tr>
<tr>
<td>I agree</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>I agree strongly</td>
<td>11</td>
<td>19.0</td>
</tr>
<tr>
<td>I don’t know</td>
<td>6</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Table 6.24 shows that 31.0% of the respondents would agree to this idea, followed by 27.6% who somewhat showed welcomed the prospect of the government paying the charges. It indicated the willingness of the end-user to collaborate with the government towards making their houses look better and meet their requirements.

End-user Interview Question: According to the survey results, it was indicated that people spent a lot of money getting their houses finished to their specifications. One of the options that was asked in the questionnaire concerned the cumulative participation of both the end-user and the PAHW towards completing the house as the end-user wanted. The option was for end-users to
inform the PAHW of their house needs, and the end-user could pay for the agreed-upon modifications and additions, and PAHW could undertake this as a total project.

It was also further stated that, currently, many of the people who opt for plots face problems with contractors. From the survey, 12% of the respondents disagreed with this option, and although this seems to be a good option to the majority, it was important to understand why there was disagreement among the minority. According to residents of FahadAl_Ahmad City, the option is good, but there is uncertainty about whether PAHW will take that extra measure of listening to the citizens about their housing needs and constructing houses based on those needs. The factor here was the uncertainty about PAHW’s participation and the applicability of the option.

According to the end-user responses here, they are ready to incur additional investment towards required changes that suit and meet user needs. According to the PAHW representative, Eng. NaserAl-Saeed (2009), a survey was done in the initial stage to obtain public opinions about the designs. The procedures that followed during the design stage are listed below:

- Architectural design
- Design study (survey) (NB: if the design was acceptable to 60% of respondents, it passed.)
- Architectural design (second stage), approval of the idea is sought from a higher manager of PAHW
- Arrangement with other divisions, e.g. electrical and mechanical engineering
- Final approval by the higher manager’s department
The 60% here represents a general public view and was not targeted toward the end-users who would occupy the houses, and the houses are designed without identifying who will live in them. Therefore, surveys such as this will have no impact on stopping the modifications. With this in mind, the question was asked concerning why the actual end-users could not be gathered for a presentation of the existing designs to be made. At such a presentation, end-users’ opinions could be gathered and the necessary changes could be undertaken to incorporate popular suggestions.

Abdullah Al-Reshidi (2009) stated that “this is not possible and was found to be inapplicable to identifying who will live in these houses, because there would be too many modification requests in the construction process, which will be difficult to implement and also time-consuming.”

Further, this survey that is being conducted is focused on the general public where neither the PAHW nor the end-users know what kind of house design they will receive or where their house will be located. The survey is very general; 60% of the respondents provided a positive opinion. In addition, the current process of assigning the houses is done after the construction has been completed.

To overcome this problem and make it more efficient, end-users have to be identified during the design phases. This should not be generalised but specific. People should be told about the location of the city, the location of the house within the city, and the various designs available. This basic information must be provided and understood by both PAHW and the end-users.
After this, a survey must be conducted in order to acquire more accurate data for use in directing the finalization process.

When this option was suggested to the PAHW representative, he raised a valid concern. Providing the exact location and the type of house that the end-user will receive would make the end-user behave like a supervisor, visiting the construction site frequently. He would then pass his comments and put forth various suggestions to modify the house, thereby increasing the cost and the time required for construction. It would also create conflicts between the PAHW, the end-users, and the contractors. This was pointed out as one of the major reasons why the house assignment remains anonymous until the end.

6.3.2.17: General Satisfaction Analysis

Table 6.25 analyses the satisfaction levels of end-users after receiving their houses, indicating that 63.8% of respondents were satisfied after making a few modifications to their government housing. Still, 12.1% were dissatisfied, and only 24.1% were satisfied. With a mean value of 1.87, the responses are distributed between options 1 and 2.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>Satisfied after making some changes</td>
<td>37</td>
<td>63.8</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>7</td>
<td>12.1</td>
</tr>
</tbody>
</table>

End-user Interview Question: A majority of 64% showed satisfaction with their houses after they had made the necessary changes. The satisfaction percentage is significant, and residents of
Fahad Al-Ahmad City were asked during the interview to comment on the level of their satisfaction after changes were implemented.

One resident indicated that Kuwaiti people look for perfection and are willing to expend the extra effort required to achieve perfection in their jobs. The reasons for this were identified as the population size and the wealth of the country. The population of the country is small, and its economy is rich because of its oil production. Most citizens are well-off financially, so they can afford to spend money to get the best for their homes. Such people are not easily satisfied; therefore, the PAHW and the government of Kuwait have a tedious task on their hands.

As the others have indicated, this does not show how many people are satisfied after the modifications are completed; rather, it shows the large number of people who are dissatisfied with the government readymade houses. This is a fact that the PAHW must understand and take seriously. If the government is interested in providing readymade houses for its citizens, then they must be beneficial to the citizens and should not be conducted as a routine. With each design, construction, and development, the PAHW must learn the citizens’ needs and figure out how to accommodate as many changes as possible in order to earn the citizens’ satisfaction with its projects.

6.3.2.18: Analysis of Facilities Provided in Fahad Al-Ahmad City

Table 6.26: Is the Fahad Al-Ahmad City area considered to be excellent in regard to other services, such as schools, clinics, and mosques?

<table>
<thead>
<tr>
<th>Scale</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>12</td>
<td>20.7</td>
</tr>
<tr>
<td>Somewhat</td>
<td>20</td>
<td>34.5</td>
</tr>
<tr>
<td>I agree</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td>I agree strongly</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>
The final question in the government survey was the satisfaction level of end-users in the Fahad Al-Ahmad City area with other services, such as schools, clinics, and mosques. It was found that 43.1% of the respondents were fully satisfied with the facilities, while 34.5% stated a reasonable level of satisfaction; however, 20.7% were not satisfied. This could be because this is a new city that is still being developed.

End-user Interview Question: Residents of Fahad Al-Ahmad City were asked to comment on their city and the facilities it provided, such as schools, hospitals, and mosques.

The respondents agreed that the entire location of Fahad Al-Ahmad City was good because it is close to the other developed cities and ideally located in relation to both commercial and other residential areas. In addition, the City provides all the basic amenities, such as schools, hospitals, clinics, pharmacies, shopping malls, police stations, and fire stations. Most of the needed services were available within the city itself; therefore, it was seen as a good place to live. These basic amenities were developed and in place before the residents began to move in and live in their homes. Therefore, the government had taken precautions and measures to ensure that citizens would be well accommodated.

6.3.3: CROSSTAB ANALYSIS (Government House)

The following section provides a crosstab analysis with some of the important demographic variables and questionnaire statements to understand the relationship between the variables and to assess the possible influence that the variables exhibit concerning the people’s opinions concerning the government readymade houses provided by the PAHW in Kuwait.
The crosstab analysis in Figure 6.11 shows the relationship between the age of respondents and their waiting periods to get a house. Based on the responses, most people had to wait more than 12 years to get a house, and the age at which they received the house was between 31-40 years. This is followed by respondents in the 41-50 age range, who also had to wait more than 12 years to get a government readymade house. This is the normal age when people receive their government readymade houses because they cannot apply for a house until they are married, and the waiting period is 12-15 years.
The crosstab analysis in Figure 6.12 shows the relationship between the monthly income of respondents and the housing option they chose. PAHW provides two main housing options to citizens. Citizens are not restricted to selecting just one option; they can select many options and provide their order of preference. Based on the analysis, respondents earning monthly incomes between KWD 1,001 and 1,500 selected plots as did the monthly income group of KWD 500 and 1,000. From the overall analysis, most respondents selected plots as their first preference. People who opted for a government house are with the monthly income group of less than KWD 500 to 2,000. Thus, it is apparent that monthly income plays a role in the selection of housing options. This is because housing construction is an expensive process in Kuwait as the houses are large, and people with a substantial monthly income choose to undertake the construction of their own houses through the selection of plots.

Figure 6.13: Crosstab analysis between ‘monthly income’ and ‘partial modifications’ made to government readymade housing
Figure 6.13 shows the crosstab between income and the occurrence of modifications immediately after the house was received. Based on responses, it is evident that most respondents made some modifications to the government readymade houses. The highest responses were within the KWD 1,001 to 1,500 income group. Here, 34% of respondents stated that they had made modifications, and 10% accepted the houses without making any modifications. In addition to making changes, another factor that can be gathered is that income does not play a significant role in whether people make modifications or not. Changes were made by people of all income groups. This is also an indication the government readymade houses are not fully in accordance with the homeowners’ needs and requirements.

Most respondents agreed that the government should participate in providing the best readymade houses to the citizens by interacting and asking them to pay for extras. Figure 6.14 shows the relationship between monthly income and people who agreed to participate with the PAHW and help pay for the changes they required in order to get the best outcome. From the analysis, people who are in the ‘somewhat agree,’ ‘agree,’ and ‘strongly agree’ categories earned a
monthly income between KWD 500 and 1,500. People who earned more than KWD 2,000 a month showed less interest and willingness to participate with the PAHW in building their desired houses. These people would rather select plots and build their house from scratch than depend on readymade government houses.

6.4: PLOT ANALYSIS

This was the second survey we conducted involving respondents in the Fahad Al-Ahmad City area in Kuwait. The plot survey consisted of two phases using quantitative and qualitative surveys.

*Phase I:* Quantitative data collection from residents who had received plots from PAHW. Data collection was done by distributing pre-designed questionnaire survey forms. The completed forms were entered into SPSS, and the findings are discussed here.

*Phase II:* From the quantitative respondents, a few were contacted for further qualitative surveys. This was done through the use of pre-designed questionnaires and face-to-face interviews. Data were written and later transferred to the computer, and are provided along with quantitative surveys here.

6.4.1: Respondent Demographic Analysis

6.4.1.1: Plot - Gender Analysis

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>44</td>
<td>95.7</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>4.3</td>
</tr>
</tbody>
</table>
Based on the results, 96% of the respondents were males. This is because, in Kuwait, the male is the head of the house.

**End-user Interview Question:** Most respondents in the survey were males, and the residents of Fahad Al-Ahmad City were asked to comment on why most of the responses were from males.

Kuwait is a country based on Arabic tradition and customs. Accordingly, the male leads the house and takes care of the needs of each dependent member. Even the option of registering with the PAHW was the responsibility of a male family member and could only be done immediately after the marriage. From then on, taking care of the rest of the family is the responsibility of the male members. Therefore, the head of the family is always considered to be the male in a traditional Kuwaiti environment.

The extent of male dominance was cited by some respondents who gave the example of the Deewaniya. The Deewaniya is the most prominent meeting place for the Kuwaitis. According to tradition, Kuwaitis used to gather in the tent of a prominent family member on a daily basis to
discuss and resolve all kinds of matters. The same tradition is in place today, and the Deewaniyas have been transformed from tent environments to a modernised structure comprised of meeting halls and rooms. The Deewaniya is located in the front of the house, and its size is a sign of its owner’s prestige. The Deewaniya is restricted to men who gather to discuss personal, professional, and political matters. During election time, candidates standing for various political positions visit the Deewaniyas to speak with the attendees in person and ask for their votes. Even in such an environment, the women do not sit with the men, and the decisions are made by the men.

Quoting these examples, it was stressed by the respondents that most of the respondents would obviously be males. Since the male members oversee the construction of the house and are personally involved in each stage until completion, it is better to receive feedback directly from men.

6.4.1.2: Plot – Age Analysis

Table 6.28: Plot Respondents, Age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>31-40 years</td>
<td>23</td>
<td>50.0</td>
</tr>
<tr>
<td>41-50 years</td>
<td>20</td>
<td>43.5</td>
</tr>
<tr>
<td>50+ years</td>
<td>1</td>
<td>2.2</td>
</tr>
</tbody>
</table>
The age range varied between 31 and 40 years (50.0%) and 41 and 50 years (43.5%). Eligibility for application with PAHW is only after marriage. Traditionally, people in Kuwait get married in their early- to mid-twenties, but the waiting period between their application and the receipt of the option is long, which could contribute to most of the respondents being in the age ranges specified above.

6.4.1.3: Plot – Analysis of Marital Status

Table 6.29: Marital Status of Plot Respondents

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>43</td>
<td>93.5</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Widow/Widower</td>
<td>2</td>
<td>4.3</td>
</tr>
</tbody>
</table>
As only married people can apply for the various options of flat, plot, or government house, in our study, 93.5% of the respondents were married, and the remaining 6.5% had been married and either their spouses had died or they were separated.

End-user Interview Question: With regard to marital status and the indication that the majority were married; respondents were asked to comment on this majority.

It was indicated unanimously that, in order for Kuwaiti citizens to apply with the PAHW, one of the main qualifications is that they are married. Since the study focuses on collecting information from people who have opted either for plots or government readymade houses, the respondents clearly must be married.

6.4.1.4: Plot – Analysis of Respondents’ Occupations

Table 6.30: Occupations of Plot Respondents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee</td>
<td>18</td>
<td>39.1</td>
</tr>
<tr>
<td>Responsible</td>
<td>20</td>
<td>43.5</td>
</tr>
<tr>
<td>Free business</td>
<td>5</td>
<td>10.9</td>
</tr>
<tr>
<td>Retired</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2</td>
<td>4.3</td>
</tr>
</tbody>
</table>

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As shown in Table 6.30 and Figure 6.20, job occupation is considered an important factor in choosing among the PAHW options. Salary and benefits received from the jobs may affect the type of housing that is chosen. Further detailed analysis is done by employees’ monthly income.

### 6.4.1.5: Analysis of Plot Respondents’ Educational Qualifications

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Intermediate</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Secondary</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>Diploma</td>
<td>17</td>
<td>37.0</td>
</tr>
<tr>
<td>University</td>
<td>14</td>
<td>30.4</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Ph.D. degree</td>
<td>3</td>
<td>6.5</td>
</tr>
</tbody>
</table>
The respondents’ educational qualifications (Table 6.31 and Figure 6.21) were analysed to understand their choices of housing options. Knowledge of the various options and their pros and cons will affect their choices. As evident from the analysis here, 37% of the respondents had earned diplomas, followed by 30.4% who were university graduates. This will also reflect the type of job they hold and their monthly income, which is an important factor towards selecting house type.

### 6.4.1.6: Analysis of Monthly Incomes of Plot Respondents

<table>
<thead>
<tr>
<th>Monthly Income of Plot Respondents</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-1000 KWD</td>
<td>12</td>
<td>26.1</td>
</tr>
<tr>
<td>1000-1500 KWD</td>
<td>20</td>
<td>43.5</td>
</tr>
<tr>
<td>1500-2000 KWD</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>More than 2000 KWD</td>
<td>6</td>
<td>13.0</td>
</tr>
</tbody>
</table>
Monthly income is considered the most important factor in analysing the choice of plots and the outcomes of that choice. People choose plots so that they can build their own houses in the particular way that they want. The outcome of the house, the payments against the plots, and other expenses will all depend on the monetary strength of the household. As discussed earlier, this responsibility belongs to the male members. From the development of the house to the wellbeing of the family, it is the man’s responsibility to make sure these issues are taken care of.

From the interviews, it was gathered that income had a positive influence on the selection of plots; however, higher income does not mean that the choice is left to the end-user. Higher-income end-users have to wait the same time as everyone else and also have to go through the stringent process of receiving the plots. Yet, plots will be a preferred choice for higher-income groups because they can afford to build their house the way they want. With the plot option, the overall size of the house, the number of rooms, the style, and the amenities can all be decided based on the preferences of the end-user.
End-user Interview Question: Residents of Fahad Al-Ahmad City were asked to indicate the importance of job occupation, educational qualifications, and monthly income as factors in their selection of plots.

Plots were the first choice of almost all applicants who did not base their decision on job occupation, educational qualifications, or monthly income; however, between these three considerations, monthly income played the strongest role. The respondents indicated that this is because people with higher incomes have greater demands on the house; they will change the features, fixtures, fittings and size of the house. On the other hand, people whose income level is average will have fewer demands due to their financial restrictions. In relation to income, job occupation also plays a significant role, since people in managerial positions receive higher salaries than those in supervisory or lower level-jobs. None of these concerns are important to PAHW, though, since it provides houses to all citizens of Kuwait on an equal basis and without discrimination.

Although monthly income plays a strong role, it was also stated that most people prefer plots as their first choice. This is because the government readymade houses have been unsatisfactory to the citizens of Kuwait for many years. The habit of modifying the houses to meet end-users’ needs and requirements has been practiced for so many years that most people do not expect to see many changes from the PAHW in providing better homes. Therefore, irrespective of the type of income, job position, or educational qualifications, people will still opt for plots and build their own houses if they can afford to. Housing and personal loans are readily available from the
government and banks, so Kuwaiti citizens do not necessarily have to worry much about the cost of building their dream houses.

6.4.1.7: Analysis of the Number of Dependents of Plot Respondents

Table 6.33: Number of Dependents of Plot Respondents

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Persons</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>3-4 Persons</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>5-8 Persons</td>
<td>30</td>
<td>65.2</td>
</tr>
<tr>
<td>More than 8</td>
<td>7</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Figure 6.21: Number of Dependents of Plot Respondents

Size of the house and expenses incurred are factors that are influenced by the number of family members. The results here showed that 65.2% of the respondents had 5-8 members in their family. Most Kuwaiti families are large, which calls for a large house with many bedrooms and other features.

End-user Interview Question: Residents of Fahad Al-Ahmad City were asked to comment on the number of family members and the number of rooms that they had constructed. Government readymade houses have 6-7 bedrooms, which is generally considered sufficient in other parts of
the world. In countries such as Jordan, for example, the houses provided are smaller, and have only two or three bedrooms, which is considered sufficient by the Jordanian people.

According to the respondents, the numbers varied between 10-18 bedrooms. The ones with 14 bedrooms stated that they were a family of seven members with a driver and maids. The ones with 18 bedrooms indicated that they were eight family members with two servants. One person had designed two Deewaniyas – one for young males and the other for elders. He took an interest in inviting people on a daily basis for a meeting and dinner.

One individual with 15 bedrooms stated that they were only four family members and one servant in the household. They currently only occupy the second floor, and rent the first floor (ground floor) to tenants. The rent received helped repay the loan amount back to the government. Another individual with 12 bedrooms had eight family members with two servants and one driver. In addition, he commented on the large Deewaniya that he had, which was separate from the building. He also commented that, if the waiting period is the same after his sons get married and apply for a plot or house, then he will be forced to build a third floor to accommodate the new family.

A respondent with 10 bedrooms stated that he had nine family members, two servants, and one driver. His mother and sister also lived with them. His house had three floors; he and his family lived on the top floor, while his mother and sister occupied the second.
From all the responses, it was understood that the Kuwaiti family lifestyle is similar to a joint family at least with the immediate members. Similarities in terms of the house design were also found. Each of the respondents stated that the house was designed in a flat sort of environment where each bedroom has an attached bathroom and there is a living room and play area for the children on each floor. The Deewaniya was particularly emphasised, especially by those who had large Deewaniyas. The provision of rooms for servants, drivers, and other people who were not family members but who were part of the household was an important concept. The concept of the house was based on the occupants’ immediate necessities and also in consideration of the members of the next generation, which would have to wait for a long period to receive their houses.

6.4.1.8: Plot – Disabled Family Members

Table 6.34: Are there any disabled people in the family?

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>6.5</td>
</tr>
<tr>
<td>No</td>
<td>43</td>
<td>93.5</td>
</tr>
</tbody>
</table>

Having disabled members in the family will affect the requirements of the house and also the choice of a plot. According to the analysis, 93.0% of the respondents had no disabled people in the family.
6.5.1: In-depth Analysis

6.5.1.1: Plot – Option Applied with PAHW

According to the analysis in Table 6.35, 97.8% of the respondents applied for plots.

End-user Interview Question: Residents of Fahad Al-Ahmad City were asked what kind of option they had applied for with the PAHW – flats, plots, or government readymade houses. Flats were not preferred by anyone because the Kuwaiti tradition and living standards do not match with the flat environment. Between plots and government readymade houses, plots were preferred because they provide citizens the freedom to build a house to their liking.

A few respondents claimed that government readymade housing was the better choice because plots required extensive investments to get a house constructed and because that process was time consuming. People with a lack of knowledge of construction, or even in supervising construction, will face even more challenges because the contractors often try to get as much money as possible from the citizens. In case of disputes or disagreements, matters could reach the court, thereby lengthening the amount of time needed for the completion of the house.

6.5.1.2: Plot – Waiting Period to Receive Plots

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-8 years</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>9-12 years</td>
<td>6</td>
<td>13.0</td>
</tr>
<tr>
<td>More than 12 years</td>
<td>39</td>
<td>84.8</td>
</tr>
</tbody>
</table>
The waiting period for most plots is over 12 years, with 12-18 years considered to be the standard waiting period. There were four answers provided here, beginning with a waiting period of less than 5 years. Since none of the respondents selected this answer, it is not indicated in Table 6.36. As indicated by the plot respondents, the age range of 31-40 years or more is the standard age at which people receive plots. The marriage age ranges from about 20 to 25 years old for males, and the waiting period varies from 10-18 years, so end-users will not receive a housing allotment or assignment until they are 31 to 40 years old.

6.5.1.3: Plot – Location of Plot within Fahad Al-Ahmad City

Table 6.37: Where is your house situated in the quarter?

<table>
<thead>
<tr>
<th>Location</th>
<th>Freq</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the head of the street</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>Near the head of the street</td>
<td>14</td>
<td>30.4</td>
</tr>
<tr>
<td>In the middle of the block</td>
<td>21</td>
<td>45.7</td>
</tr>
</tbody>
</table>

Table 6.37 indicates that most respondents’ houses are located in the middle of the block. Location of the plot is important because people want as much space as possible, and plots situated at the corner have a little more space available at one end. Land is expensive and limited. Therefore, most land space is occupied by buildings, and spaces between the houses are limited. This restricts privacy and areas for children to play. For these and other similar reasons, people try to get plots situated at the corner. But the choice of plot location is not left to the public; the plots are assigned through the lottery. In the following section, these issues are analysed and discussed further.
6.5.1.4: Plot – Mode of receiving current location of plot

Table 6.38: Mode of receiving current plot

<table>
<thead>
<tr>
<th>Mode of receiving current plot</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through the lottery</td>
<td>38</td>
<td>82.6</td>
</tr>
<tr>
<td>Exchanged locations with someone</td>
<td>8</td>
<td>17.4</td>
</tr>
</tbody>
</table>

As discussed earlier, the assignment of plots by PAHW is the government’s policy, so 82.6% of the respondents acquired their plots this way, but 17.4% of the respondents indicated that they acquired their plots through exchanges with other owners. This is a common practice, and there are two reasons why it occurs: the primary reason is that people prefer having more space and do not wish to be surrounded by buildings on both sides; the second reason is associated with the person who sells the plot. Plots are exchanged after the people who own them determine the best rates. As demand increases, the transfer amount also increases. Plots are usually exchanged with people who offer the highest amount. Therefore, the practices of exchanging the plots are usually common between people who have sufficient money and those who are in need of money.

End-user Interview Question: From the quantitative and qualitative information gathered from residents of Fahad Al-Ahmad City, the importance of location was highlighted. During the interview, effort was made to understand whether respondents were satisfied with the location of the plots/government readymade houses received through the lottery or if they had exchanged housing with someone. The respondents also clarified the importance of location.

Most respondents remained with the location that they had received through the lottery. The best location for the house was indicated to be at the head of the street, and the demand for this location was large for two main reasons: one is that it allows the house to be seen and reached
easily; the other main reason is that wherever two or three streets intersect, extra land space is often available. Although this extra land space is the property of the government, the resident in that location knows that the government cannot do anything constructive with such a small space and therefore uses it (without government approval) as extra parking space, a play area for the children, or, in some instances, for constructing a family mosque.

People receive their plots only through the lottery system from the PAHW. People whose numbers are called in the beginning have all of the plots to choose from, but as more and more people make their selections, the amount of available plots lessens. Respondents from Fahad Al-Ahmad City stated that the location of the plots was important to them. Therefore, although the plots have been received from PAHW via the lottery, some people exchange their plot for one that is more ideally located through a mutual understanding between the new owners. These exchanges are financially expensive, with some respondents paying as much as KWD 28,000 to exchange their plot for a more desirable location in that city.

According to another person, the amount of KWD 28,000 is a low estimate because there are instances of people paying as much as KWD 40,000 to exchange their plots for better locations. From the overall response, it was understood that everyone wanted a plot at the head of the street and not in the middle of the block, where they are surrounded by houses on both sides. If the head of the street is unavailable, then people prefer locations that are close to amenities, such as pre-schools and shopping malls.
### 6.5.1.5: Plot – Reason for choosing plot

#### Table 6.39: Reason for choosing plot

<table>
<thead>
<tr>
<th>Scale</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designing the house according to the family's needs and desires</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Somewhat</td>
<td>12</td>
<td>26.1</td>
</tr>
<tr>
<td>Agree</td>
<td>18</td>
<td>39.1</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>15</td>
<td>32.6</td>
</tr>
<tr>
<td>There are too few rooms in government houses and the rooms are not large enough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Somewhat</td>
<td>17</td>
<td>37.0</td>
</tr>
<tr>
<td>Agree</td>
<td>20</td>
<td>43.5</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>Lack of basements in government houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>Somewhat</td>
<td>12</td>
<td>26.1</td>
</tr>
<tr>
<td>Agree</td>
<td>15</td>
<td>32.6</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>Government houses do not fulfil the needs of handicapped family members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>34.8</td>
</tr>
<tr>
<td>Somewhat</td>
<td>14</td>
<td>30.4</td>
</tr>
<tr>
<td>Agree</td>
<td>10</td>
<td>21.7</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>The monthly income allows choosing a superb design different from the neighbours’ houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>28.3</td>
</tr>
<tr>
<td>Somewhat</td>
<td>25</td>
<td>54.3</td>
</tr>
<tr>
<td>Agree</td>
<td>5</td>
<td>10.9</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>3</td>
<td>6.5</td>
</tr>
<tr>
<td>To avoid the modification problems that occur when choosing the government house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>32.6</td>
</tr>
<tr>
<td>Somewhat</td>
<td>22</td>
<td>47.8</td>
</tr>
<tr>
<td>Agree</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>2</td>
<td>4.3</td>
</tr>
</tbody>
</table>

The first reason provided (Table 6.39) for choosing a plot is to meet the family’s needs. Houses can be built according to the owner’s specifications, taking into account the family’s needs. This helps preclude the need for any kind of modifications for a long period and ensures the customer’s satisfaction. Here, an overall 72% of the respondents agreed and indicated that the freedom to choose and build their own designs was the major factor.
Another reason why people select the plot option is the limited number of rooms in government houses. According to a cumulative 59% of respondents, this was one of the reasons for choosing plots. As discussed within the demographics, most families have several members. Even for newlyweds, the responsibility of taking care of the husband’s family still exists within Kuwaiti culture, and this extends not only to the parents but also to brothers and sisters. Therefore, the requirement for large houses with many rooms is considered more of a necessity than a luxury.

The lack of a basement in government houses was mentioned by 57% of the respondents as another reason for choosing plots. These respondents considered a basement to be an essential part of Kuwaiti houses, a feature lacking in government-constructed houses. From the responses received here, this can be considered the third major reason why people prefer to select plots.

The fact that government houses do not fulfill the needs of handicapped family members has received an equal distribution in the ‘agree’ and ‘disagree’ categories. Therefore, this cannot be taken as a contributing factor in selecting plots. In addition, it was evident from the demographic analysis that the percentage of respondents who had disabled family members was only 6.5%, which is another reason why this option cannot be considered valuable to the study.

A high monthly income allows the choice of a superb design that differs from neighbours’ homes, and it allows residents to avoid having modification problems with a government-supplied house. Both factors received maximum responses in the undecided category of ‘somewhat’; therefore, these factors will not be considered for further analysis and discussion.
End-user Interview Question: For further clarification, residents’ reasoning for selecting plots with the intention of designing a house to their liking was discussed with the residents of Fahad Al-Ahmad City.

Respondents agreed on the freedom that citizens had with plots. By using plots, citizens could design the house according to their needs and have it built by any construction company they chose. The citizen could decide all the materials to be used and fittings to be installed. A citizen who is a client of a contractor can specify what he needs and when he wants the house to be completed. The only limitation the citizen faces is her or his knowledge of construction and how to deal with a contractor.

With plots, the citizens can decide all of the requirements, such as a basement, a third floor, the size of the rooms, the number of rooms, the location and design of the rooms, and even the way the Deewaniya is constructed. This matters because, as discussed earlier, a large Deewaniya is a sign of the owner’s prestige.

One respondent pointed out a disadvantage of selecting plots. He stated that plots are time-consuming; and, if one does not possess knowledge of construction and how to deal with a contractor, government readymade houses are a better choice. This respondent indicated that some people choose plots so that they can live close to rich people. This is because rich people will wait to get plots and design houses with the best and most expensive materials and fittings. Therefore, the street where these houses are will be considered a wealthy street, and it would be prestigious for others to live in the same as the rich.
End-user Interview Question: In addition to the freedom of construction, it was indicated by some that their reason for choosing plots was due to the inadequate number of rooms in the government readymade houses. From earlier discussions, it was understood that the number of rooms in a government readymade house is between 6 and 7, whereas the number of rooms in a house built by the respondents who chose the plot option ranged from 10 to 18.

According to the residents of Fahad Al-Ahmad City, the smaller number of rooms was indicated as a problem especially for those that had more than five family members plus maids and drivers. For those who had less than five members, the number of rooms in the government house was considered adequate. Yet, they indicated that this amount would become inadequate after their sons married and started having children of their own. At that time, they would have to build a third floor to accommodate their sons’ families until their sons could get a house of their own. If the waiting time continues to be as long as it is now, then they would have to live under such crowded conditions for many years.

The respondents also commented on the smallness of the Deewaniya. The meetings and gatherings that take place on a frequent basis have at least 10-12 members, and that feels crowded in a government readymade house. In addition to the utility of the space, the Deewaniya also represents prestige, and so a large Deewaniya is always desirable.

Taking into consideration the size of the family, the size of the rooms, and the number of rooms needed, most opted for plots whereby the specification of the house is completely left to the owners.
End-user Interview Question: In the quantitative survey, a considerable percentage of respondents indicated that the lack of a basement in government readymade houses was a reason for people to choose plots. Residents of Fahad Al-Ahmad City were asked to comment on this topic.

The importance of a basement was indicated by most respondents, and the lack of a basement was indicated as their major factor for choosing plots against government houses. Basements provide an extra area for children to play safely, additional living space, space for holding various functions, and some storage area. Due to this extra availability of space that can provide for various uses, the basement was considered an important feature in the house.

End-user Interview Question: Further questions asked of the residents of Fahad Al-Ahmad City included understanding the importance of providing features to accommodate disabled family members in government housing. This was another factor that was indicated by a few as lacking in government housing, and so it was important to know if this was a factor in the people’s choice of plots over government readymade houses.

One respondent indicated that the only advantage that disabled people have over other people is that their waiting period is reduced by three years. In other words, if a non-disabled applicant has to wait 10 years to get a government readymade house, a disabled would get it in seven years; however, this reduced waiting period had no significance to disabled family members because the readymade houses had no features to support them. In other words, the standard government readymade houses and the houses provided to the disabled members were the same.
Others pointed out that, although the percentage of disabled members in the population of Kuwait is very small, the government should make special considerations and treat these members with special care. This care was found to be lacking.

**End-user Interview Question:** Among the respondents, 54% answered ‘somewhat’ to the question ‘The monthly income allows applicants to choose a superb design different from their neighbours’ houses. What do you say?’

Changes were expected to be associated with the income of the individual. The idea was that people with higher incomes were supposed to perform more extensive renovations than those with lower incomes. This was backed by some of the respondents, but further analysis of the interview provided the understanding that, although income had an impact on the changes made to government readymade houses, this was not a factor stopping those of lower income from constructing houses with good designs and/or implementing changes. Many of them took personal loans in the amounts of KWD 50,000 in addition to the home loan of KWD 70,000 provided by the government. Their intention was to construct houses with unique designs and different appearances from their neighbours’, and income was no hindrance for lower-income people so long as they were able to get bank loans. It was also confirmed by a few that the reason why people choose plots (which requires a longer waiting period than government readymade house) was to construct houses that would stand out from the rest. And these houses are to be used for generations, and so great care, effort, patience, and investment are put into the construction. Those who have higher incomes or good financial strength would try and make their homes more extravagant than the others, and the investment is not limited to the exterior
façade of the house but also includes the interior, which would feature expensive furniture and fittings.

**End-user Interview Question**: The reason for choosing a plot was that there was no government limitation on the design of the house. Respondents were asked to further clarify why plots were chosen if their choice was not based on the need to modify the government housing.

Total satisfaction was the cumulative reason indicated for selecting plots. According to some respondents, choosing a government readymade house would force them to make extensive modifications, which would consume a large amount of money and time before the house could be completed as desired.

On the other hand, 48% stated that their reason for choosing plots was to avoid changes to government readymade houses, and 33% indicated that that this was not a reason. According to the respondents of Fahad Al-Ahmad City, their reason for choosing government readymade houses was not to avoid changes but because the houses provided by PAHW met most of their needs and, with small modifications, could satisfy all of their needs. Therefore, the hassles of complete construction could be avoided. One respondent even stated that he would select a government readymade house with a few changes and the addition of a third floor. The addition of a basement was indicated as one feature that cannot be achieved in a government readymade house.
6.5.1.6: Plot – Respondents’ construction experience with building their houses

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>No</td>
<td>35</td>
<td>76.1</td>
</tr>
</tbody>
</table>

The reasons for choosing plots have mainly been identified as the three reasons discussed above. Based on this, the range of reasons for choosing plots is now clear. One of the next questions was to determine whether those who opted for plots and decided to construct their own houses had any experience with construction. From the results, it was evident that most of them lacked knowledge or experience in construction, and thus would have to depend on construction companies to design and construct the house.

**End-user Interview Question:** The quantitative analyses showed that 76% had no experience in construction, yet these people opted for plots. Respondents of Fahad Al-Ahmad City were asked how they thought people with no experience in construction could design and create good houses.

According to the majority of them, the lack of experience in construction was not an overwhelming hurdle in constructing good houses. The reason they provided was that they could hire experienced construction companies that would take care of the entire project. These companies would also be able to provide different design options, allowing the citizens to choose the best options.

On the other hand, a few indicated that it is better for citizens to take a crash course on construction, so that they can understand the choices provided by the construction companies and
also supervise the projects. Without this, the construction companies could take advantage of owners/investors and extract as much money as possible from them. They will also try to delay the projects to show that it is a complicated project as a reason for extracting more money than initially agreed. To avoid being cheated, some respondents stated the need for citizens to take crash courses in house construction.

6.5.1.7: Plot – Which Construction Company was used

<table>
<thead>
<tr>
<th>Table 6.41: Who built the house?</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accredited engineering company</td>
<td>22</td>
<td>47.8</td>
</tr>
<tr>
<td>External contractor</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>Both</td>
<td>16</td>
<td>34.8</td>
</tr>
</tbody>
</table>

The results indicate most of the construction was performed by accredited engineering companies. This indicates that people took care towards building their homes by using the best and most experienced companies. Others who wanted to limit expenses but still achieve the best results, decided to hire both accredited engineering companies and external contractors. This kind of careful selection produces good results and keeps construction expenses low.

End-user Interview: Since the importance of construction companies was emphasised, it was also important to understand what type of construction companies were selected by the citizens. There are a few accredited construction companies that are certified by the PAHW, and there are many small and large private construction companies. There are many choices, and so citizens have many options.
Based on the quantitative survey, 48% of the respondents selected accredited companies, 35% stated that they used a mix of accredited and private companies, and 17% worked with private companies. According to the respondents of Fahad Al-Ahmad City, it is better to choose accredited companies because they are certified by PAHW, they know what materials to use, and they will work for the best outcome; because these companies are supervised by the government, they make sure to provide exactly what has been negotiated with their customers, as they would not want their names to be tarnished and sacrifice their business. Yet, it was indicated that these companies are expensive, so some respondents opted for a mix. Others went with the private construction companies, considering the costs.

Respondents who worked with accredited construction companies stated that those who opted to work with private companies will face various problems. They stated that these companies would understand their customers’ lack of knowledge about construction and would take advantage of them. It was also indicated that, if citizens focused solely on the cost aspect, they would select small companies and thereby fall into deeper problems, such as the inexperience of the company, work delays, and bad outcomes.

People with some knowledge of construction stated that it is better to work with private companies to keep costs low and that, with knowledge of house construction, one can get a good outcome. Another set of people agreed that working on the designs and the exterior with an accredited construction company and then taking the rest of the work with a private company can provide the desired outcome at the best rate.
Therefore, responses were mixed, but working with an accredited construction company was widely understood to be the best because, in the long run, it ensures that the house will be secure. Comparing the costs is a short-term factor, and the citizen should compare the quality and security of the house and not sacrifice on the costs when it comes to building a home.

6.5.1.8: Plot – Problem Faced by Respondents during Construction

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>Somewhat</td>
<td>9</td>
<td>19.6</td>
</tr>
<tr>
<td>Yes</td>
<td>16</td>
<td>34.8</td>
</tr>
<tr>
<td>A lot of problems</td>
<td>14</td>
<td>30.4</td>
</tr>
</tbody>
</table>

Further analysis revealed that most respondents (34.8%) faced a moderate amount of problems during the construction process. This was followed by 30.4% who stated that they faced many problems. This indicates that respondents faced both large and small problems during construction. The following analysis will determine whether these problems would cause the respondents to change their minds about their decision.

End-user Interview Question: The quantitative response indicated that citizens who had selected plots and were involved in constructing their own homes faced problems during construction. Respondents of Fahad Al-Ahmad City who had done their own construction were asked during the interview if they faced problems during the construction of their houses and, if so, what the problems were.

There were varied responses, and most indicated that they had faced some kind of problem. Some stated that the materials used by the constructors were not of good quality; some
constructors even used bootleg materials. These materials carried reliable names, but the product was manufactured elsewhere. Most of the customers had been unaware of these specific issues, so it was easy to cheat them.

Other problems were related to the increases in the cost of raw materials due to market fluctuations. These were problems that could not be easily foreseen by contractor or the customers. Such problems occur regularly in the construction sector. These are some of the risks that the customer and the contractor both face. During such a problem, it becomes difficult for the contractor to explain the price hikes and the market situation to the customer. At times, the price increases can be quite large, according to one of the respondents. For example, it was stated that, during 2007, the price of iron jumped from KWD 160 to 440. This is a considerable increase that would affect the construction costs significantly.

The relationship between the contractor and the customer was indicated as a major problem. The problem here can work both ways. The contractor’s lack of knowledge and expertise may become evident during the construction, creating a bad relationship. The use of inferior raw materials and bad outcomes can also create problems between the customer and the contractor. Similarly, the customer’s lack of knowledge can also result in bad relationship outcomes. Changing the designs and features of the house during the construction process can pose difficulties for the contractor. This also generates price increases that may not be easily understood by the customer, thereby creating problems between them.
One respondent indicated the government’s responsibility in the house design. He stated that PAHW is responsible for inspecting the house construction, especially the main structure of the house. This is done through the use of an accredited company. Therefore, the citizen does not expect any problems with the raw materials or construction if PAHW does the checking. The problem arises when the citizen wants to make changes and hires private contractors in the process. In short, if everything goes according to the initial agreement and the work is conducted by an accredited company, then the citizen has nothing to worry about.

It is when the jobs are being reviewed and changed while the work in ongoing that problems occur. Therefore, citizens should first have a clear picture of what they want, and the contractor should agree to provide what the citizen requests using the best raw materials. Once the agreement has been reached, it should not be altered; this way, the project will go smoothly and be completed quickly.

### 6.5.1.9: Plot – Response to Selecting Plot if Provided another Opportunity

<table>
<thead>
<tr>
<th>Would you choose the plot option again if you had another chance?</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>30</td>
<td>65.2</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>34.8</td>
</tr>
</tbody>
</table>

When respondents were asked if they would change their minds if provided another chance, only 35% of the respondents stated that they would. Although the reasons for choosing a plot were to build houses that met the owners’ and families’ needs, the problems they faced during construction constituted one reason for this change of mind. Subsequent analysis revealed what kind of option they would select if they were free to choose again.
**End-user Interview Question**: The quantitative response showed that 35% of citizens who had selected plots stated that they would not choose plots if they were provided a second chance. This differed from the responses of those who had chosen government readymade houses; most of them stated that they would choose plots if provided a second chance. During the interview, residents of Fahad Al-Ahmad City were asked why they thought 35% would not choose plots if given a second chance to choose.

The comments received from the residents indicated pointed to the construction problems that these people encountered. Many of them lacked experience with construction, and so the problems that arose during construction related to changes in their design plans. People who lack construction knowledge and experience also find it difficult to understand the concept and design that is provided by contractors in drawings. In most cases, the house designs, the sizes of the rooms and the exterior and interior finish are all shown on the computer or, in most cases, on paper. It is not easy to understand the exact size and features in this manner, especially when the person does not understand scaling or how to read the drawings. In such circumstances, the customers get to see the houses as they are being built, and when they notice that it is not what they had pictured, they decide to change it. This change can bring about disagreements in various ways and create problems between the customer and the contractor.

Further, if the customer hires separate internal contractors, then disagreements between the main contractor and the interior designers can also pose various kinds of problems. The construction sector can also pose various kinds of problems. To avoid such problems, customers should try to work with specialised and authorised contractors and try to limit the entire project to one of these
professional construction companies that can understand customer needs and provide a one-stop-shop solution.

6.5.1.10: Plot – Type of Option Respondents Would Choose if Provided another Opportunity

Table 6.44: If you were free to choose again, what kind of house would you choose?

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government House</td>
<td>6</td>
<td>13.0</td>
</tr>
<tr>
<td>Plot</td>
<td>32</td>
<td>69.6</td>
</tr>
<tr>
<td>Flat</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>Concrete framework (if available)</td>
<td>7</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Table 6.44 shows all of the options available and the option that respondents would choose if they were free to choose again. A majority of 69.6% of the respondents stated that they would still select plots.

End-user Interview Question: Respondents in government readymade houses and those that had selected plots and constructed their own houses both indicated that they would select plots if provided a second opportunity. Residents of Fahad Al-Ahmad City who had selected plots were asked to comment on why the demand for plots had increased despite the fact that the government readymade houses were satisfactory to many and the people who chose plots and built their own houses encountered many construction problems.

Among residents of Fahad Al-Ahmad City who had selected plots and built their own houses, it was agreed that plots would remain the preferred option by most of the citizens. The reason given was that the design of the government houses lacked desirable options, such as a basement, a third floor, a larger number of rooms, larger size rooms, and top-quality materials.
On the other hand, people who had selected government houses and indicated that the houses met most of their requirements were the ones whose families only had four or five members, excluding maids and drivers. Thus, these residents had to make very few changes to make the houses satisfactory. Yet, since Kuwaiti families have large numbers of dependents and since most of the male members continue to live with their parents even after their marriages, the requirements concerning the number of rooms, a basement, and a third floor were important.

The PAHW has to understand the needs of its citizens and provide houses that meet their needs. Once the basic needs are truly understood, a large number of citizens will opt for government readymade houses with fewer changes. It has also been understood from the earlier analysis that most of these citizens faced construction problems. So, if the government readymade houses were able to meet the needs of the citizens, then citizens would avoid trying to construct their own houses.

6.5.1.11: Plot – Response to End-User Paying Government for Modifications

Table 6.45: If the government were to design houses according to the citizens’ needs and wishes, and if each citizen had the right to choose additional characteristics, such as a basement, a third floor, a more attractive external shape, and an elevator, would you agree to pay for these additions?

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>9</td>
<td>19.6</td>
</tr>
<tr>
<td>Somewhat</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>I agree</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>14</td>
<td>30.4</td>
</tr>
<tr>
<td>I don’t know</td>
<td>4</td>
<td>8.7</td>
</tr>
</tbody>
</table>

From the analysis, it was found that respondents would be willing to pay if modifications were made according to their requirements. But, to limit the extent of the changes needed and to
establish effective policies and procedures, it is important for the government to first understand the publics’ requirements of government housing. Once the government establishes a means of collecting public views and uses that information to develop designs that suit the public’s needs, then changes can be limited. Changes can thereby be accepted on a cumulative rather than an individual basis. If the changes are repetitive and numerous, they can be implemented as standard requirements, and designs can then be modified accordingly. This process will bring about designs that are easily accepted by the public, and modifications can gradually be limited as public satisfaction with government housing increases.

End-user Interview Question: The quantitative questionnaire included a question asking whether citizens would be willing to pay for their recommended options if the government were to design houses according to the citizen's needs. Among the respondents, 47.8% answered ‘agree’, 23.9% answered ‘somewhat’, 19.6% answered ‘disagree’, and 8.7% answered ‘don’t know’.

This option requires the government to interact extensively with citizens in order to understand their needs. The citizens have the financial capability to invest in the modifications, yet nearly 20% responded that they disagreed.

According to respondents, people’s lack of desire to invest in the modifications was not due to financial limitations; rather, it was based on their uncertainty about the government’s interactions with them. The PAHW has interacted with the citizens on a personal basis and has not limited its data collection to survey methods. Feedback from the citizens must be incorporated into the designs, cost estimates must be determined, and various outcomes of the houses have to be
provided so that the citizens will understand that their needs are being fulfilled. The PAHW can only undertake modifications to the main features, such as providing a basement, adding a third floor, increasing the number of rooms, increasing the sizes of the rooms, and improving the appearance of the exterior of the house. It cannot take into consideration all the fittings that must be provided, such as lights, bathroom fittings, and other fixtures. This is because these requirements will differ for each citizen, and it would be extremely difficult, if not impossible, for the PAHW to focus on these small, specific items. These can be taken care of by the citizens themselves.

Some of the discussion was concerned with having a large Deewaniya, but PAHW is unlikely to consider such a requirement because it may not be seen by PAHW as being very important. This could leave a small percentage of people disappointed enough to opt for a plot instead of a house. But these are extra features and the citizen may have to pay for them independently since these features would not likely be considered as part of the original design of the house. So, if the main house is built according to the citizens’ needs with cumulative participation, then the PAHW will have overcome many of the hurdles in achieving citizen satisfaction.

The option of having PAHW interact with citizens was viewed positively by many. It was also mentioned that the government should develop a scientific way of collecting data from the citizens.
6.5.1.12: Plot – General Level of Satisfaction with the Current House

Table 6.46: General satisfaction with current house

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>31</td>
<td>67.4</td>
</tr>
<tr>
<td>Satisfied after making some changes</td>
<td>8</td>
<td>17.4</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>7</td>
<td>15.2</td>
</tr>
</tbody>
</table>

The results from Table 6.46 indicate that most respondents (67.4%) were satisfied with their current house. The remaining respondents with less satisfaction or dissatisfaction can be attributed to the construction problems that they faced.

End-user Interview Question: Plots provide the option for the citizens to build their house as they prefer. Yet, when the quantitative survey was conducted, 67.4% stated that they were satisfied, 17.4% stated that they were somewhat satisfied, and 15.2% remained unsatisfied. When the construction of the house was completely left to citizen, it was surprising that only 67.4% were completely satisfied.

When the residents of Fahad Al-Ahmad City were asked to comment on why the remaining percentage was not in the completely satisfied group, they indicated that this is because of construction problems that were faced and disagreements between customers and contractors. These disagreements can be due to the price increases of raw materials whereby the costs of the construction had to be reviewed and increased or due to changes that were demanded by the customer during the construction phase.
As mentioned by one of the persons, a lack of experience on the part of the customer or the contractor can lead to problems. Most of the customers/respondents lacked knowledge of the construction sector and, therefore, could not deal carefully and professionally with the contractors. On the other hand, considering cost, the customers opted to work with low-priced contractors who were either inexperienced in building Kuwaiti homes or who used low-priced raw materials to keep costs low.

6.5.1.13: Plot – General Level of Satisfaction with Facilities in Fahad Al-Ahmad City

Table 6.47: Is the Fahad Al-Ahmad City area considered excellent concerning other services, such as schools, clinics, and mosques?

<table>
<thead>
<tr>
<th></th>
<th>Freq</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>Somewhat</td>
<td>18</td>
<td>39.1</td>
</tr>
<tr>
<td>I agree</td>
<td>14</td>
<td>30.4</td>
</tr>
<tr>
<td>I strongly agree</td>
<td>3</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Fahad Al-Ahmad City is new and still being developed. Nevertheless, essential services, such as schools, clinics, mosques, and other such facilities, ensure occupant satisfaction as indicated by 23.9% of the respondents.

End-user Interview Question: In the final section of the survey, respondents were asked to comment on the facilities that are provided in Fahad Al-Ahmad City, such as schools, mosques, shopping malls, clinics, hospitals, emergency services, and police. The quantitative survey revealed that 39.1% were only ‘somewhat’ satisfied, 30.4% were in the ‘agree’ category, and 6.5% were in the ‘strongly agree’ category. Among the respondents, 23.9% remained in the ‘disagree’ category.
As indicated by the interviews with the respondents, Fahad Al-Ahmad City is a new city that has not yet been fully developed. Although there are basic and immediate facilities, such as mosques, supermarkets, clinics, pharmacies, food outlets, and police services, the options for more and bigger mall facilities, which the Kuwaiti people are accustomed to, are yet to be developed. Fahad Al-Ahmad City comes under the Ahmadi governate, and, therefore, one of the respondents commented that the lack of facilities is not limited to the new city but to the governate as a whole.

The need for more mosques, larger educational facilities, more healthcare, and large shopping malls, in addition to different government departments, was identified by some of the respondents during the interviews.

6.5.2: Crosstab Analysis – Plots

From the crosstab analysis, it can be understood that most had to wait for more than 12 years. The age group of those receiving plots ranged between 31 years to 50 years. There were a few
people who managed to receive plots between 5-8 years and 9-12 years. These would be people who did not receive the plots directly from the PAHW but rather exchanged them with others. From the earlier quantitative and qualitative analyses and findings, a few indicated that, after waiting a long time, they exchanged plots with people who had received government houses in order to live close to their relatives. On average, people had to wait more than 12 years to get plots.

![Figure 6.23: Crosstab analysis between ‘monthly income’ and ‘option applied with PAHW’](image)

Figure 6.25 shows the choice that respondents who selected plots made from the three options that PAHW provides. From the results, it is easily understood that most made their choice of plots and stayed with that choice. Most people opted for plots irrespective of their monthly incomes, but a small 2% opted for government housing, with these being in the monthly income group of KWD 1,000 to 1,500. Therefore, monthly income is not a restriction or variable in opting for plots.
Respondents who selected plots were asked whether they would be willing to participate with the government and, if required, invest in the construction of the house if the PAHW would hear citizens’ needs personally and design houses based on citizens’ feedback. Based on the results, people with a monthly income between KWD 1,000 and 1,500 showed more interest in participating with the government, followed by the lower monthly income group (KWD 500 to 1,000). Even the other monthly income groups indicated willingness to work cooperatively with the government, but, in terms of responses within the ‘agree’ and ‘strongly agree’ categories, the higher response was from the group that had a monthly income in the range of KWD 500 to 1,500.
Figure 6.25: Crosstab analysis between ‘monthly income’ and ‘satisfaction of house constructed by respondents’

From the crosstab results, higher satisfaction levels were received from people with monthly incomes of KWD 1,000 to 1,500, followed by people with monthly incomes of KWD 1,500 to 2,000. The groups with monthly incomes of KWD 500 to 1,000 and of more than KWD 2,000 both indicated 9% satisfaction levels.

6.6: CUMULATIVE ANALYSIS (Plots and government houses)

The cumulative analysis examines the similarities between the government house survey and the plot survey.

6.6.1: Respondent Demographic Analysis

6.6.1.1: Cumulative analysis by Gender

Table 6.48: Cumulative Analysis, Gender

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>49</td>
<td>84.5%</td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>15.5%</td>
</tr>
</tbody>
</table>
The influence of the male gender within the Kuwait culture was discussed earlier. Applications to the PAHW were largely done by males. As evident from Table 6.48, 84.5% of respondents within the government survey and 95.5% within the plot survey were males.

According to interview responses from both government and plot surveys, it was understood that men head the family, business, and political environments. Major decisions are made by men, and since building a house for the family is a major responsibility, it would automatically be the duty of the males. Females are involved only if they are widowed.

### 6.6.1.2: Cumulative Analysis of Age

Table 6.49: Cumulative Analysis of Age

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>20-30 years</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>31-40 years</td>
<td>33</td>
<td>56.9</td>
</tr>
<tr>
<td>41-50 years</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>50+ years</td>
<td>2</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Table 6.49 is the age analysis for the government house and plot surveys. There is a similarity here, with some respondents in both surveys being in the age range of 31-40. In the government house survey, the majority of respondents were within this age group, but in the plot survey the ages were distributed between the 31-40 range and the 41-50 range, with 50% in the former and 43.5% in the latter.

Respondents who received new houses were 31-40 years old due to the long waiting period and the fact that they could not apply to PAHW until they were married.
6.6.1.3: Cumulative Analysis of Marital Status

Table 6.50: Cumulative Analysis of Marital Status

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Married</td>
<td>55</td>
<td>94.8</td>
</tr>
<tr>
<td>Separated</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>Widow/Widower</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

In the marital status analysis in Table 6.50, most respondents in both the government house survey and the plot survey were married. Since only married people can apply to PAHW for housing, the majority of the respondents belong to the married group.

6.6.1.4: Cumulative Analysis of Job Occupation

Table 6.51: Cumulative Analysis of Occupation

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Employee</td>
<td>30</td>
<td>51.7</td>
</tr>
<tr>
<td>Responsible</td>
<td>15</td>
<td>25.9</td>
</tr>
<tr>
<td>Free business</td>
<td>6</td>
<td>10.3</td>
</tr>
<tr>
<td>Retired</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2</td>
<td>3.4</td>
</tr>
</tbody>
</table>

The occupation cumulative analysis shows that there is a difference between the results of the government survey and the results of the plot survey pertaining to maximum responses. The government survey has most of the responses in the ‘employee’ category, whereas the plot survey has the most responses from employees holding ‘responsible positions’, such as managers and executives.
Plots are the first option for most citizens, but the waiting period for plots is much longer than for government houses. Also, after receiving the plot, the house must be built from scratch. Thus, the cost to the end-user is much less for a government house than for building a house on a plot. Therefore, employees with low income tend to opt for government houses, while people with responsible jobs and higher income tend to opt for plots. Further, as the status of individuals increases, they prefer to live near similar people. People who choose plots are usually wealthy or have good positions. There is a relationship between occupation and income and the choice of a government house or a plot.

6.6.1.5: Cumulative Analysis of Education Qualifications

Table 6.52: Cumulative Analysis of Educational Qualifications

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Primary</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4</td>
<td>6.9</td>
</tr>
<tr>
<td>Secondary</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>Diploma</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>University</td>
<td>23</td>
<td>39.7</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

The educational qualifications analysis also showed differences between the two surveys. For the government house survey, most respondents had a university education, whereas most of the plot survey respondents had diploma qualifications. It should be noted, though, that the difference between diploma and university in the two surveys was relatively small. It was gathered from the interviews that educational qualifications were not a prominent factor in the selection of either government houses or plots.
6.6.1.6: Cumulative Analysis of Monthly Income

Another difference was within the monthly income, with the government house survey showing 44.8% with KWD 1,001 to 1,500 per month and the plot survey showing 43.5% with KWD 500 to 1,001 per month.

Table 6.53: Cumulative Analysis of Monthly Income

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Less than KWD 500</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>KWD 500-1,000</td>
<td>18</td>
<td>31.0</td>
</tr>
<tr>
<td>KWD 1,001-1,500</td>
<td>26</td>
<td>44.8</td>
</tr>
<tr>
<td>KWD 1,500-2,000</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>More than KWD 2,000</td>
<td>5</td>
<td>8.6</td>
</tr>
</tbody>
</table>

Monthly income played a positive role in the selection of government houses or plots, but the waiting period for plots was much longer, so most citizens opted for a government house. Then, based on their income level, they made the necessary modifications to the government house to suit their requirements.

6.6.1.7: Cumulative Analysis of Family Dependents

Table 6.54: Cumulative Analysis of Family Dependents

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>2 Persons</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>3-4 Persons</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>5-8 Persons</td>
<td>32</td>
<td>55.2</td>
</tr>
<tr>
<td>More than 8 Persons</td>
<td>11</td>
<td>19.0</td>
</tr>
</tbody>
</table>

In the case of dependents in both the government house survey and the plot survey, most respondents had 5-8 dependents, with 55.2% and 65.2%, respectively. The dependents within Kuwaiti families are not limited to spouses and children, but include parents, brothers, sisters,
and sometimes other close relatives. This could be considered one of the reasons why most respondents have 5-8 dependents.

The number of dependents influenced respondents’ selection of a government house or plot, and this was more prominent in the case of plots. Feedback received from the interviews revealed that most respondents felt that having a large family caused citizens to favour the selection of a plot so they could build a house with more rooms. In addition, the custom of male family members remaining in the same house even after getting married was another reason for having a larger number of rooms than the government houses provide.

6.6.1.8: Cumulative Analysis of Disabled Family Members

Table 6.55: Cumulative Analysis of Disabled Family Members

<table>
<thead>
<tr>
<th></th>
<th>SURVEY TYPE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GOVERNMENT HOUSE</td>
<td>PLOTS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>5.2</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>94.8</td>
<td>43</td>
</tr>
</tbody>
</table>

Having a dependent with a disability creates special requirements for the house. This seemed to be a possible reason for the modification of government houses or why people tend to choose plots and design their own houses, but in the government house survey and the plot survey, 94.8% and 93.5%, respectively, indicated that there were no disabled family members.

From the interviews, it was understood that the government does not pay much attention to the needs of the disabled. Government houses provided no special adaptations, such as special entrances or lifts, and it would be very difficult to add these to the government houses. Of
course, with the plot option, though, houses can be designed and built to accommodate such needs.

### 6.6.2: Satisfaction Analysis

This section analyses the satisfaction level of end-users with their houses, plots, and the Fahad Al-Ahmad City area where the houses and plots are located.

#### 6.6.2.1: Cumulative Analysis of Option Requested From PAHW

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Plot</td>
<td>46</td>
<td>79.3</td>
</tr>
<tr>
<td>Government</td>
<td>11</td>
<td>19.0</td>
</tr>
<tr>
<td>Flat</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Although PAHW provides three options (i.e., plots, government houses, and flats), the majority of Kuwaitis either choose plots or government houses, and among these two alternatives, the most opt for plots. This is evident from the results in Table 6.56. Respondents within both surveys indicated that they had opted for plots, but some changed their decision to government houses because the waiting period was shorter. Waiting for over 12 years for a house is bad enough, and the PAHW usually takes even longer to issue plots. When the respondents are provided a choice between ready government housing and waiting for a longer period, many opt for the government house; and in many cases, this is followed by changes to the house to satisfy the end-users’ needs.

From the quantitative analysis and the interviews, it was understood that most people applied for plots, but due to the long waiting period, applicants tended to opt for government houses.
6.6.2.2: Cumulative Analysis of Waiting Period

Table 6.57: Waiting Period

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
</tr>
<tr>
<td>5-8 years</td>
<td>4</td>
<td>6.9</td>
</tr>
<tr>
<td>9-12 years</td>
<td>8</td>
<td>13.8</td>
</tr>
<tr>
<td>More than 12 years</td>
<td>46</td>
<td>79.3</td>
</tr>
</tbody>
</table>

The waiting period was identified as a major hurdle for the applicants’ selection of government houses or plots. It was also stated as a major problem that the waiting period for a government house was more than 12 years and that for a plot could be 15 years or longer. The PAHW should consider this seriously and find ways to decrease the waiting period.

6.6.2.3: Cumulative Analysis of the Location of the House or Plot

Table 6.58: Location of the House or Plot

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
</tr>
<tr>
<td>At the head of the street</td>
<td>17</td>
<td>29.3</td>
</tr>
<tr>
<td>Near the head of the street</td>
<td>12</td>
<td>20.7</td>
</tr>
<tr>
<td>In the middle of the street</td>
<td>29</td>
<td>50.0</td>
</tr>
</tbody>
</table>

According to Table 6.58, most respondents had a house or plot located in the middle of the block. By default, most end-users prefer that their house be situated at the corner of the street. This usually provides more room at one end, which is not sufficient to construct a house. Therefore, people who get the end of the street utilize this space for parking, for a children’s play area, or other specific end-user requirements. The demand for end-of-the-street houses and plots is high, and people who receive this area from the government either keep it for themselves or exchange it with the highest bidder because they need the money.
The location of the government house or plot was not the choice of the end-user. All of them received their option through a lottery system. Upon completion of a city, qualified applicants, based on their application dates, are called at a predetermined date and time. Using a lottery, applicants are called forward to make their choice in the area. People whose numbers come in the beginning of the lottery get to select and make their desired choice, whereas choices are limited for those who get to choose late in the process. People who are determined to get their desired location can pay large amounts of money to those who have received government houses or plots at the head of the street to exchange the preferred location with the location they acquired from the lottery. It was understood that location of the house, especially at the beginning of the street, was an important factors to the end-users.

6.6.2.4: Cumulative Analysis of Method of Receiving a House or Plot

Table 6.59: Method of Receiving a House or Plot

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Through the lottery</td>
<td>46</td>
<td>79.3</td>
</tr>
<tr>
<td>Exchanged locations with someone else</td>
<td>12</td>
<td>20.7</td>
</tr>
</tbody>
</table>

The common method used by PAHW for assigning a house or plot is the lottery system. A lottery with people’s names is conducted at a predetermined date and time, and their options are provided. According to Table 6.59, the majority of the government house and plot respondents received their options via the lottery, and the others exchanged their original option with someone else.
As indicated from the quantitative analysis and also from the interviews, government houses and plots can only officially be received through the lottery from the PAHW; however, people with money will try to exchange locations with those who have good locations for large sums of money.

6.6.2.5: Cumulative Analysis of General Satisfaction Level with Government Houses and Houses Designed and Constructed by End-Users

Table 6.60: General Satisfaction with Government Houses and Houses Designed and Constructed by End-Users

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>Satisfied after making some changes</td>
<td>37</td>
<td>63.8</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>7</td>
<td>12.1</td>
</tr>
</tbody>
</table>

The final questions in both government house and plot surveys related to satisfaction levels. Respondents in both surveys were satisfied, but to different extents. End-users of government houses were satisfied after making changes that suited them, thus indicating that they were not satisfied with what they received initially. In the case of plots, since end-users can build houses to their own satisfaction, the satisfaction is generally high, i.e. 67.4% in this case. Those who were less satisfied or unsatisfied can be attributed to bad construction, as it was evident from the earlier analysis that the end-users lacked experience and expertise in construction, and most chose low-cost construction companies rather than relying on accredited engineering companies.

From the quantitative analysis and interviews, it was understood that people with government houses were satisfied only after making changes. This indicated that most had to modify the government houses in order to be satisfied. For plots, since the end-user was personally
responsible for the design and construction of the house, it was constructed according to the end-
user’s requirements, so satisfaction levels were high.

6.6.2.6: Cumulative Analysis of the General Satisfaction with Fahad Al-Ahmad City

Table 6.61: General Satisfaction with Fahad Al-Ahmad City

<table>
<thead>
<tr>
<th>SURVEY TYPE</th>
<th>GOVERNMENT HOUSE</th>
<th>PLOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>20.7</td>
</tr>
<tr>
<td>Somewhat</td>
<td>20</td>
<td>34.5</td>
</tr>
<tr>
<td>I agree</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td>I agree strongly</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

This survey was conducted with respondents in the Fahad Al-Ahmad City area. Therefore, the
satisfaction level with regards to the various facilities, such as schools, clinics, and supermarkets,
was determined and included in Table 6.61. According to people who selected government
houses, 43.1% were in the ‘satisfied’ category, followed by 34.5% in the ‘somewhat’ category.
With regards to respondents in the plot survey, 39.1% were within the ‘somewhat’ category,
followed by 30.4% in the ‘agree’ category. This difference can be attributed to facilities having
already been provided in areas where houses had been constructed, whereas the areas where the
plots are assigned are scheduled to get these facilities later. This could be one of the reasons for
the difference in satisfaction level.

Fahad Al-Ahmad City is relatively new, so facilities and amenities, such as schools, clinics, and
shopping malls are still in the process of being built to meet adequate requirements; therefore,
the satisfaction level is likely to increase later.
6.7: FINAL ROUND OF PAHW INTERVIEWS

Data collected from managerial and responsibility-holding positions in PAHW revealed that they were aware of the problems that citizens are facing in terms of their dissatisfaction with the government readymade houses. It was based on this that PAHW has been continually taking surveys from the citizens of Kuwait. Based on feedback and random observations that PAHW conducts, the government readymade house designs are gradually being changed.

PAHW indicated that one of the solutions for achieving the citizens’ satisfaction was the black concrete framework. Through this option, the PAHW would provide the framework, and the citizens could build the interior to their liking, including the painting and other features; however, this option was unsuccessful, and hence has been discontinued. PAHW discussed that it is not easy to meet all the demands of the citizens, and since most citizens are financially well-off, their demands and requirements on the houses increase constantly and vary from person to person. Data collected concerning the reason for the failure of the black concrete framework pertained, for example, to the lack of a basement, the lack of a third floor, the small size of the rooms, and the lack of space to build additional rooms.

During the initial phase of the study, Fahad Al-Ahmad City was the latest and the most modern city built by the PAHW. From the final round of interviews that were conducted with the PAHW towards the close of the study, it was understood that a newer city had been constructed by PAHW for the citizens of Kuwait. It is called Al-Nahda, and it is similar to Fahad Al-Ahmad City. This new city also provided options for plots and government readymade houses. Al-Nahda provided newer designs of readymade houses, but it was observed by some of the
representatives of PAHW that citizens continued to make modifications to the houses immediately after receiving them.

When asked how the government developed the designs for the new houses, PAHW representatives said that the government readymade houses provided in Al-Nahda were different from those provided earlier. The design concept was the result of random surveys of citizens and observations of the changes made to earlier projects by the homeowners.

PAHW did not officially supervise any of the modifications on the inside of the houses, since these were not brought to PAHW’s attention by homeowners. The law requires the homeowners to obtain PAHW’s permission before making structural changes to the new houses, but since PAHW’s permission was not obtained, PAHW was unaware of the changes until after they were completed. Only external changes are noticed by PAHW, because it does not have the authority to enter private homes and conduct inspections.

It was indicated that some of the modified houses were completely different from the actual government readymade houses. In fact, the houses had very little resemblance to what was provided by the PAHW. It was commented that in some cases the change of design was ugly and the concept was hardly understood. For example, some of the houses had staircases on the outside of the house, even though there are staircases to each floor inside. Others commented that the colours and the designs were unappealing. It was difficult for these respondents from PAHW to understand the reasons for these changes in the design concept.

The frustrations with PAHW that the respondents had were obvious during the interviews. They indicated that it is useless to spend time and money providing new designs since the citizens are going to make changes anyway. Besides, they wondered why the government should be
concerned about the changes since the citizens were spending their own money to make them. It was argued by respondents that, since the money invested by the government in providing high-quality houses to the citizens is wasted when the citizens remove fittings and fixtures and make structural changes, the government should not neglect such waste. Therefore, the money that the government invested into providing good homes is being wasted through the removal and destruction of existing construction.

The problems with PAHW’s approach are highlighted in our research. After identifying which citizens are eligible to receive the houses, PAHW should invite them to participate in the design stage of the houses. Instead of doing random surveys, personal interactions with the citizens would provide a better understanding of their needs and requirements for their houses. To ensure that there are personal interactions, PAHW should identify 3,000-4,000 eligible citizens, divide them into smaller groups of 250-300 people, and then involve them in the design and presentation phases. The presentation phase will involve displaying homes that have been designed based on the citizens’ feedback.

The PAHW representatives asked how the citizens’ participation could be considered as a solution when most citizens lack knowledge of and experience with the construction of houses. The author assured PAHW that involving citizens in the design and presentation phases would help to increase their knowledge and interest in opting for government houses, because empirical findings indicated that most did not want to build houses from scratch.
6.8: EXPERT GROUP

The data collected during the four phases of the study were analysed and presented to a group of experts in the field of engineering and housing in Kuwait. Ten experts were selected based on their qualifications, experience, and fields of expertise. These experts were met personally, and copies of the findings were provided to them after verbally introducing the need for the meeting and the importance of their opinions. Details of the experts are provided in Table 6.62. Each of these experts was met individually.

Table 6.62: Expert Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Discipline</th>
<th>Qualification</th>
<th>Position held</th>
<th>Years of Experience</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Mohammed Bouree</td>
<td>Architectural Engineer</td>
<td>MS degree</td>
<td>Staff member of Design Department, PAHW</td>
<td>30</td>
<td>Kuwait</td>
</tr>
<tr>
<td>2 Abdullazez Al-Huder</td>
<td>Architectural Engineer</td>
<td>Bachelor Degree</td>
<td>Staff member of Design Department, PAHW</td>
<td>9</td>
<td>Kuwait</td>
</tr>
<tr>
<td>3 Nasser Al-Saeed</td>
<td>Architectural Engineer</td>
<td>MS degree</td>
<td>Head of Design Department, PAHW</td>
<td>15</td>
<td>Kuwait</td>
</tr>
<tr>
<td>4 Amged Al-A’aa</td>
<td>Civil Engineer</td>
<td>Ph.D. degree</td>
<td>Professor, Department of Civil Engineering</td>
<td>17</td>
<td>Jordan</td>
</tr>
<tr>
<td>5 Ali Al-Enezi</td>
<td>Civil Engineer</td>
<td>MS degree</td>
<td>Vice President SAVE-International, Gulf Chapter- Kuwait</td>
<td>22</td>
<td>Kuwait</td>
</tr>
<tr>
<td>6 Ahmed Al-Kharfishi</td>
<td>Construction Management</td>
<td>Ph.D. degree</td>
<td>Lecturer at PAAET</td>
<td>10</td>
<td>Kuwait</td>
</tr>
<tr>
<td>7 Bader Al-Zayde</td>
<td>Civil Engineer</td>
<td>AVS</td>
<td>Private designer</td>
<td>15</td>
<td>Kuwait</td>
</tr>
<tr>
<td>8 Mohammed Hassan</td>
<td>Civil Engineer</td>
<td>Ph.D. degree</td>
<td>Staff member, Civil Engineering Department at Kuwait University</td>
<td>8</td>
<td>Kuwait</td>
</tr>
<tr>
<td>9 Hammed Al-Aani</td>
<td>Civil Engineer</td>
<td>Ph.D. degree</td>
<td>Faculty member, Civil Engineering Department at Issra University</td>
<td>20</td>
<td>Jordan</td>
</tr>
<tr>
<td>10 Kaled Yousef</td>
<td>Civil Engineer</td>
<td>MS degree</td>
<td>Manager of Al-Teaf Construction Company</td>
<td>22</td>
<td>Kuwait</td>
</tr>
</tbody>
</table>
From Table 6.62, it can be observed that the expert group included a mix of professionals with strong academic qualifications, and the majority of them had more than 15 years of experience. They worked in PAHW, academic institutions that focus on construction and engineering, construction companies involved in the construction of government readymade houses, and SAVE International’s Gulf chapter.

The introduction began by describing the need for the study in housing and the methods in which the data were collected and analysed. The four phases of data collection were explained to the experts. The reason for choosing Fahad Al-Ahmad City was explained in that it was the newest city at the time. Details of how the interviews with different PAHW representatives had been conducted were also explained to the group of experts.

6.8.1: Importance of Expert Group

Data findings collected from Kuwait residents and PAHW were validated using an expert panel. Data validation adds strength to the research findings and conclusion (Saunders et al., 2007).

An expert group consists of experts in the field of study. In this study, the chosen group included academic or professional experts in Kuwait housing, PAHW, and VE. The experts were chosen at random, then approached to request their expert advice. Those who agreed to participate were presented with a copy of the analysis and findings along with the conclusions and recommendations. Based on the findings, conclusions and recommendations, the expert group agreed that there is indeed a problem with the housing process in Kuwait, especially with the waiting time and homeowner dissatisfaction with government readymade houses.
Based on the conclusions and recommendations which focus on customer participation in Stages I and II of VE, most of the expert group representatives agreed that the recommendations of this research were sensible. Their feedback is provided in detail below.

**Expert panel feedback**

The expert group of representatives understood that the research was being conducted for academic purposes and with the intention of implementing VE as a tool to overcome factors related to the long waiting period and homeowner dissatisfaction. The SAVE International representative was happy to hear that VE was being recommended to PAHW as a way to improve the current problems faced by both the PAHW and the citizens of Kuwait regarding government readymade houses. The experts agreed that it is common knowledge that homeowners who have opted for government readymade houses are dissatisfied with designs and specifications. They also acknowledged that this has been made evident through various studies of Kuwait housing, including this study. All of the experts understood that this dissatisfaction was the main reason that plots as the first option for most citizens and that, since the waiting time for plots is much longer than for readymade houses, citizens will often opt for government houses with the intention of making changes. It was also stated by two or three experts that, based on their personal knowledge, some citizens select a construction company even before they apply for government housing.

The following specific problems were discussed with the group of experts:

- End-users are not identified before the work is started
- Government does not seek end-users’ opinions
Waiting period is long

The location of the city

Lack of intention to build from scratch

Availability of government house versus plots (ratio of 2:1)

Lack of monitoring and supervision

Method of distributing the locations

Government distribution of houses

Some of the experts initially disagreed with the claim that the government does not seek its customers’ opinions because the PAHW conducts a random survey of citizens concerning house requirements before a new city is built; however, the need to obtain surveys from people who are qualified for readymade houses rather than from the general population was stressed, and the expert group agreed. Also, it was pointed out that the survey was overly general and did not ask specific questions about the designs.

Group members agreed unanimously that the survey should be conducted after identifying the people who are entitled to receive their option in the new city. In other words, the survey population should not be all Kuwaiti citizens, but just the few thousand people who are entitled to receive a house based on the first-come-first-served basis that PAHW follows. People who have registered in the beginning are chosen, and this is easily known to the PAHW based on the registration dates. Therefore, it would be easier and more productive for PAHW to conduct targeted surveys rather than generalized ones.
During this time, the recommendations were shared with the members of the expert group. It was discussed with them that VE could be a solution to making better houses. The process is not limited to implementing VE and the Job Plan in their original versions, but rather the pre-workshop/study stage and workshop/study stage would be modified. In the pre-workshop/study stage, PAHW should identify which people are interested in living in the new city and distribute the survey to them. After that, a general survey of end-users’ requirements should be distributed. Based on the feedback gathered from the end-users in the surveys, PAHW will interact with the private contractors who are eligible to construct the government houses, and the private contractors will be asked to provide virtual models of the houses.

In the second stage, though the Information phase, private contractors who are selected for the construction of the houses and who had taken part in stage one will be asked to bring and present their different designs. PAHW should take a detailed survey by interacting with the citizens directly and taking their ideas on each house’s designs and specifications. The end-users should be included in the presentation phase as well to gain their approval on the final designs. These were the overall views of implementing and using the VE Job Plan in PAHW that were presented to the experts. The recommendations were discussed with the use of the VE Job Plan indicating the customers’ participation.

After listening carefully, the experts discussed what they had heard and made suggestions. They were interested in the solution but wanted to have a clearer knowledge of the how the customers would participate in these stages. One of the main concerns regarded the issue of gathering the citizens who are to receive the housing options, and there was concern about the interest they
would have in participating since very little improvement has been made in the readymade houses over many years. The response to these concerns was that, at any one time, there are only about 10,000 total housing units (readymade houses and plots) available in a given city. Gathering all of them at one time would be as good as taking a general survey, so this can be done in stage one after the end-users have been identified, but it is difficult to present the designs of houses to all 10,000 end-users at one time, so a few hundred will have to be taken at a time in stage two to gather their opinions and get their approval of the designs of the houses. Then, the other people would be involved in a similar manner. Once all of the customers have expressed their opinions, PAHW can proceed to the final stage of the Job Plan. The experts agreed that this was a good solution.

The experts became highly interested in the possibility of interaction between PAHW and the customers and commented positively about the potential for improvement in Kuwaiti housing, but they raised concern about those that may be dissatisfied with any design and still opt for constructing their own homes.

The findings in the data analysis indicated that people who were involved in construction, either through building the house from the beginning (plots option) or in making modifications to the government readymade houses, faced many problems during construction. The problems were attributable to the owners’ lack of knowledge of construction and/or the contractors’ inexperience. Therefore, the people who will choose plots are expected to be less. As PAHW begins efforts to achieve homeowner satisfaction, interest in choosing government readymade houses is expected to increase; however, it is expected that some of end-users will not find the
design acceptable, so they will still have the right to select a plot. Seven of the experts agreed to this possibility.

Some of the experts asked what would happen if the houses met the homeowners’ expectations, but modifications were required that exceeded PAHW’s budget for constructing the houses. It was discussed with the experts that, in such a case, the overage could be calculated by PAHW, and the customers could be asked to pay this amount. In this case, the customers would not need to worry about modifying the houses themselves, and could thereby avoid the hassles of construction. Positive feedback from the expert group was received for this recommendation as well.

The experts expressed their concern about the lack of the customer participation and willingness to come and provide their opinions. The reason was that, initially, citizens thought PAHW would not listen to their opinions because surveys had been conducted before, and no considerable improvements in the design and specification of the houses were observed.

In order to generate and increase the interest of the customers, PAHW should choose a venue that accommodates not only males or the heads of the house but females as well. The venue for the PAHW-Customer interaction could be a hotel or an event hall where the customers can have a good environment to bring even their family members. Creating an informal environment is expected to increase the citizens’ level of interest in participating in the event and providing their opinions.
The discussion here pertained to the government’s taking interest in its customers’ opinions concerning the design and specifications of the houses. It also overcomes the problem that customers are facing in constructing their own houses and making modifications. In both of these instances, the respondents of Fahad Al-Ahmad City faced problems related to construction, delays in the projects, and occasionally the problems even escalated to the courts, causing longer delays. By interacting with the PAHW, the customers can opt for government readymade houses with confidence that the government will provide houses that meet their expectations and needs. With the government readymade houses meeting customer expectations, the ratio of people wanting for government readymade houses is expected to increase. This would automatically decrease the waiting period and also the amount of people on the waiting list.

Another problem identified and discussed with experts was the location of the house. After end-users participate in stages one and two, PAHW can calculate the number of government houses and their design types that have been chosen by end-users. PAHW makes a random distribution of houses in the city, and, through the lottery system, each end-user has the right to choose only that design for which he or she stated a preference in the presentation phase.

The discussion with the expert group provided good insight and helped strengthen the recommendations. It is now more convincing that adopting a VE Job Plan and observing the recommendations provided in this study can lead to considerable improvements in the housing situation in Kuwait.
6.9: SUMMARY

The analysis in this chapter included responses from end-users of government houses and plots. In both cases, two sets of interviews were conducted, using both quantitative and qualitative methods. The first set of data was collected by distributing a survey questionnaire to residents of government houses and plots. Based on their responses and the analysis, the second step of data collection was conducted through personal interviews. Another stage of data collection included personal interviews with various responsible PAHW personnel. A cumulative study into these provided an understanding into the ways and means by which government houses and plots are issued and received by the citizens of Kuwait.

In order to apply for government housing, a citizen must be married. PAHW provides three basic application options, i.e., flats, government houses, and plots. Flats are rarely chosen by the citizens, so the options are basically limited to government houses and plots. Plots are preferred, but they require a longer waiting period than government houses. There are some main factors that lead people to select government houses over plots, including the expense and hassle of constructing a house from scratch, the good designs of the government houses that can be suited to end-user requirements with minor modifications, the ideal location of the city, and the shorter waiting period; however, the lack of some of the essential requirements, such as a basement, a third floor, more rooms, and larger rooms, results in people choosing plots instead of houses.

Another common factor influencing the choice between government houses and plots was the mode by which they were received. According to PAHW, all options are delivered to the applicants through a lottery system, and no discrepancies have been found with this approach.
Location of the house has also been identified as an important criterion for many users. According to some respondents, they paid large sums of money to exchange with people who had received a house or plot at the head of the street.

Data collected from government respondents revealed that most citizens make modifications to the house immediately after receiving it. Even before the family moves into the house, changes are made. This indicates dissatisfaction with the design of the house. Among the demographic factors, income was identified as a factor influencing the extent of the modifications and the types of modifications being conducted. The number of dependents was another factor that influenced the type of modifications made to government housing.

In regard to government houses, their lack of accommodations for people who are disabled and have special needs and their lack of basements were considered negative factors. From the end-users’ perspective, the failure to acquire permission from PAHW prior to making changes was seen as a negative factor. Considering the cost factor, end-users opted to choose small, private construction companies to make the modifications, and often had disagreements that, in some cases, had to be solved through litigation. The costs incurred in making the modifications were as high as KWD 20,000 in many cases. With regards to the location of the city and the overall design of the house, most were satisfied to a certain extent, but were also willing to pay the government extra money to construct houses that matched their requirements. Yet, since the government did not consider end-users’ opinions in the design of the houses, the end-users had to make the necessary modifications themselves, and often this was done by destroying brand new
government houses. Therefore, the end-users stated that they would opt for plots if they were provided with a second opportunity.

Although the waiting period was longer, the main reason for choosing plots was because they enabled end-users to design houses to their choice. Here too, income played a major role, since the housing allowance of KWD 70,000 provided by the government was insufficient. The number of dependents was also a factor that made people prefer plots, because this option allowed them to choose the number of rooms, the sizes of the rooms, the type of rooms, and other related factors without any problem. Since the end-user is involved from the design phase onwards, requirements such as a basement, a third floor, and special requirements for handicapped family members could be include easily. Lack of experience in construction and the long waiting period were identified as the main obstacles. Most of them used accredited construction companies to build the major part of the house, such as the foundation and infrastructure. Those that were concerned with cost, however, used less expensive construction companies to handle the interior work. In some cases, though, the problems arising from focusing on reduced cost and choosing less experienced companies led to further problems, with construction being delayed and the escalation of costs.

But the overall level of satisfaction with choosing plots was high; therefore, respondents stated that they would choose plots again if provided with another opportunity. With regard to the level of satisfaction with government houses, respondents in plots stated that, if the government interviewed end-users to determine their needs and designed houses according to end-users’ requirements, the satisfaction level would be higher. This would make more people opt for
government houses, and the hassles of escalated costs and construction problems could be avoided.

The next chapter will conclude the findings in detail and provide research recommendations.
CHAPTER 7: FINDING CONCLUSIONS and RECOMMENDATIONS
7.1: INTRODUCTION

This study illustrates the challenge in ensuring that the interface between the design processes and the allocation system of government houses is robust. The consequences are clear; a significant waste of resources which leads to a process that is not sustainable in the long term. The current propensity for Kuwaiti citizens to make significant and costly modifications to properties on or immediately after occupation suggests that a new system of working is required urgently.

The aim of this study is to develop a new framework based on the SAVE VE Job Plan to improve this process, including designs, construction, and distribution, to help create higher levels of satisfaction for all stakeholders (including the Kuwaiti government and end-users). To do this, a variety of methods were deployed to capture the appropriate data needed to investigate this problem and offer potential solutions. (See Fig. 7.1).

![Figure 7.1: Structure of Chapter Seven](image-url)
7.2: ACHIEVEMENT OF RESEARCH OBJECTIVES

**Objective One**: To evaluate the size of the problem and the extent to which it affects the Kuwaiti citizens.

From the initial understanding, the main problem was determined to be the inadequacy of government housing in meeting end-users’ requirements. From the case study, it was found that more than 60% of end-users made changes to their houses. Numerous changes, both small and large, are done immediately after the citizens receive their readymade houses.

This leads to another problem. With modifications, there is demolition, and both government money and end-user money are wasted. Expenses are high. The law requires that end-users acquire prior approval from PAHW before modifications are made, but due to lack of PAHW supervision, such modifications are conducted without PAHW’s knowledge or permission. PAHW must provide adequate supervision and take the necessary steps to stop such changes. To overcome these problems, PAHW must identify the appropriate customers, make an effort to understand their requirements and desired designs, and build houses that will best suit both PAHW and the end-users. With the adoption of the suggested VE Job Plan and the involvement of the appropriate customers, most of these problems can be overcome. This will be discussed in detail in the subsequent sections.

**Objective Two**: To identify and analyse the modifications made by residents in the houses provided by the PAHW.
From the empirical evidence, various changes made immediately after receiving the houses were identified. These were electrical (88.9%), sanitary (58.3%), wood works (38.9%), painting and decoration (94.4%), external works (47.2%), and external metallic doors (47.2%); these were the standard changes made by most of the respondents. In addition to these changes, other changes are frequently made, such as adding a third floor (8.3%) and removing internal walls in order to increase the sizes of the rooms (25%). Some of the respondents made extensive changes that took a lot of work and cost a lot of money.

Although none of the respondents reported any serious problems relating to the houses during these changes, it was understood that, in a few cases, an entire roof collapsed when the end-user removed a column to make the living room wider. Nevertheless, it is imperative for PAHW to keep track of these changes and ensure that major modifications are not made. Even for minor changes, PAHW should ensure that permission is acquired before any modifications are made to the house.

**Objective Three:** To identify and assess the main causes of the changes conducted in the house provided.

Judging from both the quantitative and qualitative data, the main reason for changes was that the houses did not meet the customer’s expectations. From the empirical study, nine problems were identified that contribute to the end-user’s desire to make changes to the government houses, including: (1) customers are not identified before the start of the work; (2) government does not obtain the end-users’ opinions; (3) the long waiting period; (4) the location of the city; (5) the
lack of intention to build from scratch; (6) availability of government houses versus plots (ratio of 2:1); (7) lack of monitoring and supervision; (8) method of distributing the locations; and (9) government distribution of houses.

**Objective Four:** To evaluate PAHW’s degree of awareness of the problems associated with the provision of housing and the measures that can be taken to overcome these problems.

It is important for PAHW to be aware of the changes being made by the end-users; however, according to feedback from end-users, (91.7%) of changes are made without acquiring PAHW’s permission. PAHW is aware that such changes are being made, but they do not know the details. The type of changes, the reasons for the changes, and the way in which the changes are being done are important information of which PAHW should be aware. The government measure to overcome this problem has been lacking. In other words, the designs of the houses start and end with PAHW, and the people who will live in the houses are left out.

**Objective Five:** To identify the requirements and needs of potential residents and to assess how these requirements are addressed and met by PAHW in providing housing.

Currently, PAHW takes a random sample survey of its designs. Appropriate customers/end-users are not identified. Without identifying the exact customers/end-users, it would be difficult for PAHW to provide appropriate solutions. The design of the house, the facilities provided in the house, the size and number of rooms, and the fixtures used are information that should be collected by PAHW from the end-users. Using this information, PAHW should design the
houses. In cases where PAHW is unable to keep the cost within the budgeted amount, they should determine if the end-user is willing to pay the remainder.

If the end-users are willing to pay the additional charges incurred in constructing the house according to their wishes, that would be beneficial for both parties. PAHW will be able to provide houses based on customer requirements, and end-users will not have to hire contractors to make the modifications. Therefore, if PAHW takes the initiative of implementing and using VE efficiently and involves the customer/end-user in the pre-study activity phase and presentation phase, most of the existing problems can be solved. This is discussed in detail in the recommendation section.

**Objective Six:** To develop a VE framework and Job Plan to facilitate an effective and satisfactory housing provision process by the PAHW.

The details of how this objective has been achieved are presented in Section 7.5.

**7.3: EMPIRICAL DATA ANALYSIS CONCLUSION**

The Kuwaiti government is responsible for housing its citizens. Of the three housing options that PAHW has provided, plots have been in the highest demand, followed by government houses. A new option that was being tested was the concrete framework, but that has now been discontinued. Therefore, the primary choice of most end-users is plots. In terms of supply, the ratio of plots to government houses is 1:2, primarily because the unavailability of plots and the long waiting time has led end-users to choose government houses. Once these houses are received, most end-users start making the required modifications, some small and some
extensive. In both cases, the new fittings provided by the government are removed and destroyed, and fittings that the end-users find more suitable are purchased and installed to replace them.

With plots, the main problems identified pertained to the lack of construction knowledge and the choice of inexperienced private construction companies for cost reasons. Accredited companies were chosen only for major jobs, and private companies were selected for everything else. In choosing a private contracting company, there was a risk of bad construction, the use of poor-quality materials, and the job not being completed on time. With the choices of the end-users limited to plots and government houses, the empirical data collection was also limited to these in addition to the PAHW.

7.3.1: Fahad Al-Ahmad City

The data collected and analysed from the residents of Fahad Al-Ahmad City and the data obtained from PAHW have indicated several factors that people used to make their decisions. This is a new city, and residents have just started moving in. Therefore, the feelings and responses provided here are appropriate to the study because the problems encountered, the solutions that were used, and the satisfaction level with receiving plots and government houses are fresh in the minds of the respondents. Fahad Al-Ahmad City was ideal for the study because, in addition to being a new city, it had a good combination of plots and government houses. Two types of data were collected from the residents of Fahad Al-Ahmad City, i.e. data from people who received government houses and data from those who received plots.
7.3.2: Reasons for Government Initiative in Assigning Houses for its Citizens

Kuwait is a rich country. The country’s main revenue is from its oil production and export; in fact, over 90% of the Kuwaiti GDP is derived from oil (Global, 2009). The revenue is adequate for Kuwait, which is pointed out as one of the reasons why the government does not take much initiative, as other countries do, in seeking other business opportunities or encouraging tourism. Therefore, wealth is not a problem for Kuwait in its effort to provide the best for its citizens. In addition, the population of Kuwaiti nationals is just slightly greater than one million people (cia.gov, 2009).

The main problem is the geography of the country. Kuwait has a land area of less than 18,000 km², much of which is desert or occupied by oil wells. The new cities that the government is creating are being constructed in the desert areas. The initiative of providing plots and government houses to the citizens of Kuwait was undertaken by the government many years ago, and, as a result, PAHW was created. Under this initiative, areas are selected where citizens with plots can build their own houses and where government houses are also provided for those who prefer that option. Under this initiative, the land area that a person can occupy is limited, and the allotment of the land is monitored and controlled.

7.3.3: Formation of PAHW

The Kuwaiti initiative of building houses for citizens began around 1954, when, under the “construction council,” 2,000 housing units were built. This progressed through the years, and PAHW was formed in 1993. Under the supervision and guidance of various housing authorities from 1954 until now, around 72,000 options of housing have been distributed, including 46,646
government-designed and -built houses, 24,120 plots, 1,088 flats, and only 51 concrete frameworks. Of these, flats have been a failure because the majority of the citizens do not opt to live in them mainly because the concept of flats is inconsistent with Kuwaiti culture, and they prefer the other options of government houses and plots.

People who choose plots receive a financial loan of KWD 70,000 (without interest) for construction of the house. This housing loan can be repaid in very small, pre-determined amounts over a period of 35-40 years. From the analysis, it was understood that this amount just covered the bare essentials of constructing a house and end-users had to add between KWD 20,000 and 70,000 of their own money to complete the house according to their requirements. Even in the case of government houses, it was understood that end-users made changes to the houses by putting in their own money so that the house suited their requirements. Expenses incurred in these modifications were large and depended on the type of modifications required. Conflicts with private construction companies were also observed as a major problem in many cases.

**7.3.4: PAHW Applications**

One of the main criteria for applying to the PAHW was that the Kuwaiti national should be married and not own a house. Kuwait is a male-dominated country, so when it comes to applying for a house, it is done by the head of the family. Females are involved only if they are widowed. Apart from these relatively rare situations, no other criteria are observed in applying with the PAHW. Other factors, such as education, job status, and income do not have any bearing on the receipt of applications or the assignment of houses and plots.
The current waiting list with the PAHW consists of approximately 88,000 applications. With a population of about one million people, 88,000 applications amounts to more than 8% of the country’s total population. Due to this large number of applications, the waiting period for receiving a government house or a plot is between 10-18 years or more. This indicates that only 1,500 units are being distributed each year. The government of Kuwait seems to have recognised this problem, and its solution has been to build six new cities. These cities are presumed to have around 125,000 units each. If these are created speedily, much of the housing problems in Kuwait will be sorted out and the distribution of houses could increase from 1,500 to 12,500 per year.

The initiative taken by the government towards solving the problem can be seen as positive, but the existing problem of dissatisfied end-users will still remain. This is a huge project and a large responsibility that the government has taken on. Therefore, the government should undertake any and all necessary actions to overcome and remove all hurdles and thereby ensure that the citizens are satisfied with the housing options available.

7.3.5: Notification and Allocation of New City by PAHW

When a new city is ready, people who have their applications pending are selected on a first-come-first-served basis and notified of the options in the new city. The number of people notified depends on the number of units available. If those who are notified show interest in receiving the units, a particular date and time are fixed for them to come and be assigned their area within the city. A city may be divided into many areas with each area having hundreds of houses. Based on the entire plan of the city and the type of option chosen, end-users are notified
to come and receive their selection. In the case of government houses, various designs of the houses are shown and the end-users can notify PAHW of their desired design. The choice of the end-user is basically limited to this. One of the important factors that has been noted by the respondents is the location of the house. Unfortunately, the end-user cannot select the location that he or she wants.

When everyone within a particular area of the new city gathers together, each is asked to take a number. An identical set of numbers is placed into a box, and the numbers are randomly drawn. End-users whose numbers are picked in the first 30 or so have a wide choice, but when an end-user selects a particular location, it may not necessarily match the design of the house. According to feedback received from the respondents, location has a higher importance than the design. In the case of government houses, changes are limited, but in the case of plots, the design is entirely the responsibility of the end-user. It was also apparent that most preferred the head of the street followed by the end of the city. The demand for these locations increases if there are facilities close by, such as a co-operative, schools, and shopping malls. Being at the head of the street, the house would be easy to find, so this was the first preference. Moreover, at the head of the street and at the end of the city, a free extra space would be available that can be utilised as parking, a play area for children, a garden, or for other uses.

According to PAHW’s rules, no construction is allowed in these areas, but a certain amount of privacy is available at one end of the house. This being limited, it is quickly selected by the end-users whose numbers are called in the beginning. From the survey and data gathered, the importance of location was understood by a few who had paid large sums of money (KWD
30,000 or more) to exchange with these locations currently occupied by another resident, irrespective of the house design. It also indicates that the designs are secondary compared to the location. One of the reasons for this is that people renovate existing houses and most of the time without gaining PAHW’s permission.

It can thus be concluded that end-users only become aware of what house or plot they will be receiving on the date their application is called and the selection is made. Prior to this, the end-user is virtually in the dark.

**Lottery Process**

- A location layout is distributed a few days in advance for the end-users to study.
- End-users are called together and each is given a number.
- The same numbers are put into a box from which the numbers are then drawn.
- The individual whose number is called is asked for her or his preferred location.
- Users mark their preferences on these layouts, and, when their number is called, the preferred location is disclosed to PAHW and the house is provided.
- People prefer to be called in the beginning so they will have a wide choice.
- Most choose the head of the street or the end of the city. This is because extra space is available at the edge that can be used for parking, playgrounds, and other activities. These are the first type of locations chosen.
- People who are left with little choice have to accept houses that are between other houses.
- The designs of the houses on the street differ, and, by the time some people get to choose, their preferred design may no longer be available, and they are disappointed.
• Location is of greatest importance, followed by design. This is because changes can be made to the design.

• People who do not get the head or edge locations sometimes offer large sums of money (KWD 30,000 or more) to those who were assigned these locations, even if the design does not suit their requirements.

7.4: PROBLEMS IDENTIFIED FROM EMPIRICAL RESEARCH

Various problems were identified by the quantitative and qualitative empirical analyses. The problems pertained to the long waiting period, the low number of plots, location of the city, lack of experience in building houses by end-users, lack of monitoring and supervision by the PAHW, and lack of government initiative in obtaining end-users’ opinions. These problems were identified as the main reasons end-users make modifications to the government houses.

These will be discussed individually in the subsequent sections.

The investigation revealed that 62% of the end-users made changes to their houses for various reasons.

Changes that are undertaken by end-users who lack knowledge of such things can result in problems with the house. There have been instances in which an entire room collapsed when columns supporting the roof were removed. This is due to end-user ignorance.

This problem has existed for many years, and it has become a common practice for the end-users to modify their houses. This is one of the major problems that must be sorted out.
7.4.1: Problem 1: People are not Identified before Start of Work

The eligible applicants are not identified prior to the design and construction phase. People are only made aware of the choices after the job has been completed. At this stage, neither the government nor the end-users know what is going to be issued or received or where it will be. At this stage, it is difficult to do a survey, and the outcome of the survey would be useless in making any decisions.

7.4.2: Problem 2: Government does not Obtain the End-Users’ Opinions

Choice is the right of an individual. This investigation revealed that the end-users have limited choices or no choice at all concerning their house, which is an important aspect of their lifetime. The government’s efforts to obtain end-users’ opinions and to provide options that meet end-users’ needs have been found to be lacking. The design of the government houses starts and ends with PAHW with hardly any involvement from end-users. PAHW establishes the designs, and only then does it conduct a general survey of people who may or may not be eligible for government houses. Therefore, the results of the survey maybe biased and incorrect. In addition, the qualification of the survey is a 60% vote of approval, which leaves the remaining 40% with uncertainty. Also, there is limited response to the survey, so, in effect, the end-users’ opinions are not being heard or accounted for.
7.4.3: Problem 3: Long Waiting Period

The waiting period has been identified to be around 10-18 years or more. Such a long wait often causes people to change their minds and opt for government houses, which were not their first choice. Those who still prefer a plot will have to wait even longer. The government also has to understand that the longer the delay in providing the options that people want, the greater the expense to the government becomes, because the government pays KWD 150 per month to every person who is registered with PAHW and is on the waiting list. The expense can be depicted in a simple mathematical calculation, i.e. 83,000 people x KWD 150 per person per month = KWD 12,450,000 per month. This is further multiplied by the waiting period, which is around 15 years, so the cost to the government becomes KWD 12,450,000 per month x 12 months per year x 15 years = KWD 2,241,000,000. This is a huge expense that the government incurs simply because people are kept on the waiting list for so long.

7.4.4: Problem 4: Location of the City

People prefer to live close to other populated cities. Choice is influenced by this factor as well. For example, if the options are a plot in a city that is far away or a government house in a location close to the major townships, the end-user is likely to choose the government house.

7.4.5: Problem 5: Lack of Intention to Build from Scratch

The investigation has found that government housing is not a preferred choice due to end-users’ lack of satisfaction with the designs. Even so, a certain percentage of people select government houses with the intention of making the necessary modifications to suit their preferences simply to avoid having to build a house from scratch. The empirical study indicated, however, that some
people encountered problems during the construction of their houses due to their lack of experience in construction.

7.4.6: Problem 6: Availability of Government Houses Versus Plots (ratio of 2:1)

From the investigation, it was found that there is a greater availability of government houses than plots. Even though the demand is greater for plots, PAHW issues more government houses than plots. One of the reasons for this is the financial implications—a government house may cost the government between 45,000 and 55,000KWD, depending on the price of raw materials and fixtures, whereas the government provides a housing loan of 70,000 KWD (without interest) to those who receive plots. Although the difference is relatively small, the return period may be as long as 30 years or more. In the event of the death of the person who took the loan, the government waives repayment. Thus, it could be assumed that the government’s issuance of fewer plots reflects intentional behaviour. This limited choice is another reason that end-users opt for government houses.

7.4.7: Problem 7: Lack of Monitoring and Supervision

The PAHW seems powerless over what changes that end-users make in their government houses immediately after receiving them. There are certain penalties and fines that PAHW can impose, but this is not feasible in the absence of monitoring and supervision by the PAHW. The investigation revealed that the only penalty that seems to be in practice is to void the two-year warranty that the contractors who build the houses must provide; in the event that a problem arises and the contractor finds that changes have been made, this warranty is no longer in effect. This penalty is insufficient to deter end-users from making changes.
7.4.8: Problem 8: Method of Distributing the Locations

People receive their locations through a lottery system, and it is only at that time that they get to choose where their house will be. The choice is wide if the individual is lucky and gets her or his number selected in the early stages of the lottery, and the choices become very limited later. To get the location that an end-user prefers, he or she can pay another end-user to exchange locations. The house that he or she receives from the other individual may not be the same as the first one, and he or she will make modifications according to the desired requirements.

Once the options (i.e., plots, government houses) are issued by PAHW, it is obvious not all end-users get their desired location. Therefore, those to whom location is of greatest importance will look for ways to acquire that desired location. Once the locations have been allotted, PAHW does not interfere in the exchange process. Therefore, the options for exchange are determined between individuals. People who did not get a location at the head of the street may approach those who did and propose an exchange. The current owner understands the demand for his or her location, and so a lot of money will be requested for the exchange. From the study, it was understood that people pay as much as KD 30,000 for such an exchange. The exchange is further complicated by the fact that house designs vary between locations on the same street; so, if the exchange materializes, the new owner may be faced with more problems if the design of the new house is not to her or his liking. Therefore, the new owner must spend even more money modifying the house to suit his or her individual and family needs. Thus, it can be concluded that the choice of location is much more important to end-users than the choice of house design. The same can also be observed in the case of plots, with the importance of location being given special emphasis.
In other words, everyone is aware of the demand for the location at the head of the street, so there are business aspects associated with that location. For example, when an applicant’s number is chosen early in the lottery, he will choose the head of the street, even if his choice of design is freely available elsewhere on the street. He does this because he knows that other applicants whose numbers are called later in the lottery will want to exchange locations. In this case, the lucky person whose number was called early in the lottery can opt for his choice of house located elsewhere on the street and also gain a significant amount of money in the exchange.

7.4.9: Problem 9: Government Distribution of Houses

The Kuwaiti government distributes government houses to all of its citizens without any discrimination. This is good from the government’s point of view, but personal factors, such as education, job status, income, needs of the disabled, and number of family members, are not factored in to PAHW’s assignment of government houses. Instead, there are standard designs for everyone, and a family of four with a monthly income of 1500 KWD will get the same design as a family of 12 that has a disabled family member. This is very different from the situation in Jordan, where the people who receive a house are those who lack basic shelter, so a house of 70 m² will be satisfactory.

7.5: RECOMMENDATIONS

As mentioned in this chapter, the aim of this study was to develop a framework based on a VE Job Plan to improve the provision of housing and help create a better level of satisfaction for all stakeholders, including the government and the public.
From the research, it was understood that there are various problems that exist with Kuwaiti housing. The adoption of VE by PAHW will help to identify the problems and also find solutions for the citizens of Kuwait regarding their housing, but adopting a VE Job Plan alone will not completely enable PAHW to overcome these problems. The primary factor will be the involvement of customers/end-users.

According to the VE Job Plan 2007 from SAVE International, customer involvement is indicated during the pre-workshop activities, but it is not identified in the presentation phase. The empirical study found that the main problem with housing in Kuwait was the lack of customer involvement and participation. Therefore, emphasis must be placed on customer/end-user participation in both the pre-workshop activities and the presentation phase.

In the pre-workshop stage, PAHW should begin identifying which customers/end-users are to be allotted housing in the new city. This should be followed by the first phase of data collection, i.e. a general survey of this group to gain an overall idea of the end-users’ housing requirements. During this interaction between PAHW and the end-users, PAHW should gather as much information as possible from them regarding their housing needs. Also, based on the feedback gathered from end-users in the first phase, PAHW will interact with the private contractors who are eligible to construct the government houses.

The next meeting between PAHW and the end-users would occur in the workshop stage of the Information Phase, and, based on data collected in the Pre-Workshop stage, private companies
can provide virtual models of new houses to end-users based on what the end-users have chosen from these designs, and they can also provide their feedback, which will be noted by private contractors and PAHW.

The feedback from end-users on winning designs and other aspects, such as functional aspects, will be studied during the Function Analysis phase, and alternative models based on end-users’ feedback and the function study will be presented in the Presentation Phase after the Creative, Evaluation, and Development Phases.

End-users should be invited to participate in the Presentation Phase. At this point, end-users view the models that have been developed according to the requirements they provided. Once the end-users have seen the models, they will meet with the PAHW representatives and identify which house designs they like. PAHW will distribute government houses randomly in the city and, through a lottery system, each of end-users has the right to choose only the same design that he has preferred. Others, who did not find the designs acceptable, can select the plot option. Figure 7.2 shows the suggested value study.
Figure 7.2: Value Study Diagram with suggestions
Stage 1: Pre-Workshop Activities

- Identify end-users who are eligible to receive housing units in the new city
  - PAHW announces publicly for the coming city to be distributed.
  - End-users identify as per their application day
  - Percentage of government houses and plots will be determined based on the end-users in the later stage

- Survey
  - The survey would be in two main phases.
  - The first phase would be a general survey to gain an overall idea of the end-users requirements of a house

- Private Contractors
  - Based on the feedback gathered from end-users in the first phase, PAHW will interact with the private contractors who are eligible to construct the government houses
  - The private contractors will build virtual models of the houses based upon end-user opinions received by PAHW
  - The contractors will be provided a timeframe for producing the different designs

- Create smaller groups from the total eligible population
  - The second survey will be face-to-face instruction, this has to be done with small groups so that everyone is heard
  - Within a new city, the population is expected to be around 10,000 combined (houses + plots).
  - When it comes to discussing their requirements with PAHW, it would become difficult to accommodate all 10,000. Therefore, it is better to create smaller groups of 500-700 people
  - Procedure followed in the first group will be followed in all groups
Stage 2: Workshop (Value Job Plan)

- Information phase
  - According to data collected from first survey, private companies can provide initial designs.
  - PAHW will display virtual models of new houses to all who participate
  - This virtual model will provide an understanding of the exterior and interior of the houses
  - These virtual models will provide the opportunity for end-users to start their interaction with the PAHW
  - Based on what the end-users have seen, they will provide their feedback, which will be noted by the private contractors and PAHW
  - The exact process will be carried out with all groups, providing the PAHW with a detailed and cumulative opinion on the house requirements
  - PAHW will know the most popular designs from end-users and will pass these designs to the next phase, the Function Analysis Phase

- Function Analysis Phase
  - Understand the project from a functional perspective; i.e. what the project must do, rather than how the project is currently conceived

- Creative Phase
  - Generate several ideas related to other ways to perform functions

- Development Phase
  - Further analyse and develop the short list of ideas and develop those with merit into value alternatives

- Presentation Phase
  - Present value alternatives and new house designs to higher management department and gain approval
  - End-users who have taken part in the PAHW survey are called in groups
The end-users will have a look at the exact models of the houses presented by the private contractors (in drawings, virtual models, and real models)

The end-users will also get an opportunity to interact with the private contractors on the house designs and their specifications

End-users will find that the models have been developed based on the requirements they provided

Once end-users have seen the models and interacted with the private contractors, they will meet the PAHW representatives and provide feedback on the finalization of the house designs

Once feedback from all the groups is received, PAHW will select a private contractor based on the best designs selected by end-users

Others who have not agreed with any models provided by private companies have the right to select the plot option

Based on the interaction in the presentation phase, PAHW will have the final count of people who require government readymade houses and those who require plots

After finalizing the house/plots requirement, PAHW will ask each end-user who has chosen a readymade house to sign a contract stating that they will not make any changes to the house without written permission from PAHW

The selected readymade house models will be distributed as a random distribution in the city; in the lottery system, end users have to choose the same model they chose in the Presentation Phase

Stage 3: Post-Workshop Activities

- Implementation Activities
  - Ensure accepted designs are implemented and that the benefits projected by the Value Study have been realised

- Value Study Follow-Up Activities
  - Follow up on implementation of the Value Study results and improve the application of a value methodology for future studies
7.5.1: Recommended Solution to Identified Problems

7.5.1.1: Problem 1: People are not identified before start of work

As indicated, taking surveys and understanding the requirements of the customers should be done after identifying the specific end-users/customers who are to be targeted. The people who have to live in these houses are the ones who will provide the right feedback. Preferences and needs vary from person to person, so identifying the right customer is an important criterion for successful. This will happen in the pre-workshop/study stage (Stage One).

7.5.1.2: Problem 2: Government does not obtain end-users’ opinions

One of the major problems identified through empirical research concerning the reasons why end-users modify government housing and the reason why citizens largely opt for plots is that government houses do not meet the citizens’ basic requirements. In order for government houses to meet end-user requirements, PAHW has to understand these end-user requirements. Giving complete freedom to the end-user to provide suggestions for house designs and requirements could result in an over abundance of designs being sent to PAHW for evaluation. Some of them may not take the designs provided by the PAHW, or PAHW may find the designs provided by the applicants to be beyond their construction and cost capability. In such cases, these applicants can be provided the choice of plots. This should be done in the stage one pre-workshop and stage two workshop value study.
7.5.1.3: Problem 3: Long waiting period

It was identified in the literature that, from 1954 (when the Kuwaiti government undertook the initiative to provide houses) until today, only 72,000 units have been issued by the government to its citizens and there are currently 88,000 people on the waiting list.

Keeping people on the waiting list without appropriate and convincing reasons is a bad policy. Every individual has the right to own a house, and the government should ensure that this is fulfilled without much delay. This is a responsibility of the government, and PAHW has to take the initiative to build more units at a quicker pace. The government has announced that it is developing six model cities to solve the long waiting period, but the government has to take precautions to ensure that these cities and the government houses provided meet customers’ expectations and needs.

The empirical study showed that, due to the long wait, some people change their first option of a plot and take a government house with the intention of making modifications, but others choose to wait longer in order to get plots. In the government’s initiative and its adoption of the suggested VE Job Plan, each end-user has the right to choose between the developed government house or a plot, and this will reduce the waiting time automatically.

7.5.1.4: Problem 4: Location of the city

From the empirical investigation, it was understood that the location of the city affected respondents’ choice of option. For example, in certain cases, individuals changed their primary choice of plots to government houses because the location of the city was acceptable. The
The suggested VE Job Plan will start to identify the people who want to take a place in the new city, and then end-users will choose the option that they prefer.

7.5.1.5: Problem 5: Lack of intention to build from scratch

With this problem, it was understood that many people chose plots even though they had no intention of building a house from scratch. In fact, many people who did so lacked construction experience and faced significant problems during construction. The choice of a government house was influenced by these problems and the lack of intention to build from scratch.

The government should take advantage of this factor and encourage the end-users to opt for government houses. This can be done only after the government understands the end-users’ choice of designs and their requirements for a house. This convincing factor can be emphasised during the suggested VE Job Plan.

7.5.1.6: Problem 6: Availability of government houses vs. plots (ratio of 2:1)

The issuing of plots was identified as an intentional behaviour on the part of the government. The ratio identified between government houses and plots is 2:1. In addition, the government houses were deemed unsatisfactory in most cases. Due to this, most of them chose plots as their first choice on the PAHW application. It was also gathered from the empirical investigation that government houses became satisfactory after a few modifications were made.
Therefore, PAHW can maintain a satisfactory environment by ensuring that the government houses meet end-users’ requirements. As discussed in the various sections above, through interaction with end-users/customers in stages one and two, PAHW can increase customers’ confidence and make them opt for government houses more than plots. Further, the expense of KWD 50,000 to 55,000 incurred by PAHW in building a house can be safeguarded because once the end-user is satisfied, changes and removal of existing fixtures will stop. Additional costs that exceed the budget of PAHW can be retrieved from the end-user, since these are special requirements. Thereby, PAHW can ensure satisfactory work without adding to its costs. End-users who cannot find an appropriate design can go to the second option, i.e. plots, so the ratio of government houses and plots will let end-users decide for themselves.

7.5.1.7: Problem 7: Lack of monitoring and supervision

PAHW has to ensure that the government houses, in which large sums of money are being invested, are safeguarded. It has been clearly identified that most end-users make changes immediately after receiving their houses, so PAHW’s monitoring and supervision will make the end-users aware that there could be penalties and thereby discourage end-users from making changes. Further, if the houses are designed according to the end-users’ needs and a contract is signed between the PAHW and the end-users, then changes will be reduced and maybe avoided.

This can be done only if end-users’ requirements are identified and considered in the new designs. End-users’ satisfaction levels should be met during the presentation phase of VE itself. When customers know what they are getting, the products are more likely to meet their expectations, and they will be more satisfied.
7.5.1.8: Problem 8: Method of distributing the locations

The current method of distributing government house locations is through lottery. This is acceptable, but the end-users consider the head of street and the edge of the city more important than the design of the house. In the presentation phase, after the designs have been accepted, PAHW should disclose the locations with the selected house design, and customers will understand where their houses will be located within the area. During the lottery, when the end-user has to make a choice, he or she has the right to choose only the design he has accepted in the presentation phase, regardless of the location. In so doing, both the location and the house design are verified and understood by the end-user, thereby ensuring customer satisfaction.

7.5.1.9: Problem 9: Government distribution of readymade houses

The Kuwaiti government distributes government houses for all people, irrespective of personal factors such as monthly income and number of people in the family, and the end-users, after having participated in the suggested VE Job Plan, will choose the design according to his requirements and wishes.

7.6: RESEARCH LIMITATIONS

Both literature and empirical limitations were encountered during the research, and they are discussed in this chapter.

7.6.1: Literature

The purposes of the study were to identify the extent to which Kuwaiti citizens are satisfied with the readymade houses provided by the government and to evaluate the effectiveness of VE for enhancing homeowner satisfaction, stopping modifications, and reducing the waiting period.
Literature on housing and customer satisfaction was collected from the UK, Jordan, and Kuwait. There were adequate studies in the UK on government readymade housing and related aspects, and the manner in which these studies were conducted for designing, building, and assigning the houses was adequate; however, in the literature related to Kuwait, studies were limited to the end-users’ dissatisfaction with the houses and the modifications that had been made as a result of this dissatisfaction. Discussions of the use of tools, such as VE, were not available, and therefore this study can be considered the first of its kind in Kuwait. This poses a limitation in that there was no opportunity for comparisons with the results of previous studies.

7.6.2: Empirical

The empirical study posed various limitations related to data collection. The primary limitation was the willingness of respondents to participate. Fahad Al-Ahmad City was the latest city built when the research was initiated. Therefore, it was used as the sample population for the study of the readymade housing provided by the Kuwaiti government. As presented in the literature review, a previous study about another city development faced problems similar to those identified in Fahad Al-Ahmad City, so the limited sample population in Fahad Al-Ahmad City could be generalised for other housing developments.

The selection was also appropriate in that both government readymade houses and plot options were available. Yet, finding respondents who were willing to participate in the survey was extremely difficult. This was especially true for those who had selected government readymade houses. One of the reasons for this was that most people who had accepted readymade houses had already made various kinds of modifications even before they moved in. By law,
modifications to new houses can be made only after obtaining PAHW’s authorization, and none of the homeowners had acquired the required authorization. Due to this, they were concerned that participating in the survey would reveal that they had made unauthorised changes. Even after it was pointed out that the changes, personal details, and other individual information would not be specifically revealed, the desired number of participants could not be found. Another reason for this was the busy lifestyle of the Kuwaiti people. If they are not busy at work, they are socializing in the Deewaniya. Therefore, it is difficult to get them to participate in surveys. This was one of the reasons why fewer people responded to the qualitative survey than to the quantitative survey.

Citizens who had opted for plots were also reluctant to participate because they had faced many difficulties during the construction of their houses. The costs incurred in building the houses were greater than expected, and the problems encountered with contractors were extensive, so many did not want to discuss the problems or participate in the survey.

It was even more difficult to get participants at the PAHW. It was desirable to collect the required data from middle- and senior-level employees of PAHW, but it was difficult to get appointments. In some cases, there were long waiting times for appointments, but every effort was made to collect data from as many as possible. Middle-level employees had to get special permission from their managers to participate in the survey and provide information. This raised concerns, and the author had to personally convince them of the need and explain how the data would be used. Ultimately, meeting with some of the required senior-level managers was impossible, and acquiring some of the information required was also impossible because PAHW
deemed it to be sensitive information. Due to the difficulty of getting the data when needed, data were collected whenever possible during the different phases of the study. Of course, all meetings were arranged at a time and location chosen by representative of PAHW.

7.6.3: Actual Implementation of VE

The objective of the research is to develop a VE framework and implement it in PAHW. Through interaction with different PAHW representatives in the data collection stage, VE was validated as a good solution to improve the current problems with meeting customer requirements and achieving satisfaction with government readymade houses. Although the concept of VE is accepted by some managers and decision-making authorities, the actual logistics/details of implementation have yet to be researched.

The concern, therefore, is in the actual implementation of VE in PAHW. During the interviews, it was discovered that only a few PAHW representatives were knowledgeable about VE. Therefore, even after the decision by the government to implement VE within PAHW, users need to be trained to understand the usage and importance of VE. VE has to be implemented as an organization-wide concept, which requires changes in PAHW.

The extent of the change needed within PAHW also needs further investigation. This must be investigated by PAHW along with the issue of managers’ and employees ‘acceptance levels of change. Understanding of these items is crucial as VE will be the core of PAHW’s work, and the selection of customers that qualify for housing options, customer involvement in VE phases,
house design, contractor selection, and delivery will all happen through developed VE. Lack of investigation and understanding in this area is also deemed to be a limitation.

7.7: CONTRIBUTION TO KNOWLEDGE

This study made contributions to three major stages in the existing knowledge related to VE use in a setting such as the government-provided readymade houses for Kuwaiti citizens. The following sections will target the interaction needed between government and citizens in the VE Job Plan with regards to achieving desired satisfaction levels and cost savings in government readymade houses.

1- Pre-workshop Stage: Identify the potential end-user before starting work

The first stage in the VE Job Plan is the Pre-Workshop or the Preparation stage. The literature review discusses this phase in detail, but let us recall a few important steps within this stage. It involves participation from senior management, developing the scope and objectives of the project, obtaining information regarding the project, and all other preparation needed prior to beginning the project. Two aspects of the VE Job Plan need to be highlighted here. These pertain to gathering appropriate customer/user requirements and participation from suppliers, customers, and stakeholders.

The highlight of this research is its emphasis on customer participation. The number of citizens on the waiting list is large (more than 88,000) compared to the number of housing units that are periodically constructed (approximately 5,000). As of now, the survey done by PAHW has been ineffective, as it does not identify appropriate end-users and gathers general rather than specific
data. The unique task of this stage is identifying which citizens of the 88,000 on the waiting list are qualified to receive government houses and/or plots.

Once the appropriate end-users are identified, they need to be involved in the housing design process. Based on the availability of housing units to be distributed in the new city, the exact number of qualified customers/citizens needs to be identified and these people called to meet with PAHW representatives. PAHW must ensure that each and every qualified customer’s requirements are documented. PAHW then conveys these requirements to the private contractors chosen by the PAHW to build the houses. Based on this information, the contactors are able to create scale and virtual models.

2- Workshop Stage-Information Phase: Interaction between end-user and private contractor

The Workshop Stage has six phases, the first of which is the information phase. During this phase, the end-users interact with PAHW representatives and private contractors. Based on the feedback collected in stage one, the scale and virtual model designs will be shown to end-users by the private contractors. This is an opportunity for end-user to see the houses’ interiors and exteriors. The objective of this phase is not limited to only showing the houses to end-users but also gathering further feedback on the various designs. The most frequently selected models will be moved to stages 2, 3, 4 and 5 (i.e. function analysis phase, creative phase, evaluation phase, and development phase, respectively). The sixth and final phase is the presentation phase. This phase is particularly important as this is when the end-users will be called back by PAHW.
3- Workshop Presentation Phase: Involvement of end-users in approval and agreement with the design

In this phase, PAHW will call all end-users to view the final house models that have been developed with the requirements that they provided. Once the end-users have reviewed the models, they meet with PAHW representatives and indicate which house designs they like, as per their needs and preferences. As 100% satisfaction is not possible, end-users who cannot find an appropriate design have the right to select the plot option and construct their own house.

From the empirical findings, it was understood that end-users who opted for government readymade houses and plots both faced problems during building and renovation of their houses. However, it is expected that most end-users will opt for government readymade houses rather than plots, as readymade houses offer the potential for receiving satisfactory houses from approved government contractors.

The entire knowledge contribution discussed here is the involvement of the end-user in the VE Job Plan. This means that end-users know the design, specifications, and price of the houses before they even receive them. This development VE Job Plan can be used by governments such as Saudi Arabia, Qatar, United Arab Emirates, and others that are responsible for housing their citizens. By adopting the VE Job Plan and introducing extensive interactions between government and citizens in government housing projects, the government assures that citizens’ needs are taken care of, citizens ‘finances are protected, and houses are provided that satisfy their expectations.
7.8: RECOMMENDATIONS FOR FUTURE RESEARCH

Recommendations for future research are based on the outcomes of the current research. The research aimed to understand the reasons why end-users were dissatisfied with the government’s readymade houses. Through literature reviews and empirical studies, it was found that the end-users’ unwillingness to opt for government readymade houses and the dissatisfaction of those who had done so were due to the fact that these houses lack some of the basic features that Kuwaiti homeowners want and need. A scientific and statistical approach is needed to solve this problem, and this requires that the citizens of Kuwait, specifically those who are entitled to receive the houses, communicate with PAHW and its contractors to express their expectations and requirements for the designs of the houses. Thus, it is recommended that a VE Job Plan be used with end-users’ active participation in the three main phases: the pre-study activities, the information phase, and the presentation phase.

First, PAHW should implement VE and then provide the opportunity for citizen involvement in the three phases mentioned above. Since VE is not currently being used in PAHW, the implementation, training, and usage will be time-consuming prior to citizen involvement. Since VE is the key to the success of the project, the training must be implemented and supervised by professionals. Therefore, the first part of the future research would be the study of the actual implementation of VE, including employee participation, employee training, leadership, and resource allocations, for the successful use of VE.

Another future research effort that will be required relates to the practical usage of VE within PAHW after implementation. Since VE will be applied and used throughout PAHW, it must be
integrated across the existing work structure, resulting in changes that will enhance productivity. The study should indicate the positive impact of VE within PAHW.

The third research recommendation concerns actual customer participation at various stages. The research should investigate how the customers are selected, assess their participation, determine the feedback that should be obtained, and recommend how this feedback can be used by PAHW to ensure the construction of better houses. This extensive exercise would reveal the success of VE in PAHW.

Finally, develop a value system for the PAHW can be suggested as a future research project to developing a VE model.

7.9: SUMMARY

The discussion in this research intends to provide insight into the importance of end-user participation within the housing projects in Kuwait. The present study, which has been conducted in Kuwait, and focused on one of the most recent developments initiated by PAWH, reveals the potential benefits that may be realized by the authority in adopting a VE based approach to social housing provision. The conclusions here suggest that the use of VE should be encouraged in order to improve the current levels of end-user satisfaction.
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SURVEY QUESTIONNAIRE
(GOVERNMENT HOUSE)

Dear Fahad AlAhmad City Resident,

I am Talal Lafi Alazemi, I doing my Ph.D at the University of Manchester in England. The aim of the research is to develop a framework based on VE and its Job Plan to contribute to the development of more satisfactory housing designs that will benefit all stakeholders in this issue, including the PAHW and the public.

The following questionnaire is part of my study and to achieve the aims of the questionnaire, it would be greatly appreciated if you could spend some time, to answer the questions honestly and clearly. I am so interested in knowing some information about the Government Housing Project. The results of this research will help PAHW to improve housing designs which will satisfy the resident’s needs. All information will remain strictly confidential.

Please tick the boxes in each question, which apply to your situation.
• FIRST SECTION: GENERAL INFORMATION

Q. 1: Gender

☐ Male ☐ Female

Q. 2: Age

☐ 20 -30 ☐ 31-40 ☐ 50 ☐ 50+

Q. 3: Marital Status

☐ Married ☐ Separated ☐ Widow ☐ Single

Q.4: Occupation

☐ Employee ☐ Responsible ☐ Free business ☐ Retired ☐ Unemployed

Q. 5: Qualification

☐ Primary ☐ Intermediate ☐ Secondary ☐ Diploma ☐ University

☐ Master ☐ PhD

Q. 6: Monthly Income

☐ Less than 500 KWD ☐ 500 -1000 KWD ☐ 1000-1500 KWD

☐ 1500-2000 KWD ☐ More than 2000 KWD

Q.7: Number of Family Members (Dependents)

☐ 2 ☐ 3-4 ☐ 5 ☐ More than 8 members

Q.8: Is There Any Disabled In The Family?

☐ Yes ☐ No
SECOND SECTION: INFORMATION ABOUT THE HOUSE

Q.9: What Kind of Housing Units Have You Applied For?

☐ Plot  ☐ House of government  ☐ Flat

Q.10: How Long Have You Waited to Get Your House?

☐ Less than 5 years  ☐ 5-8 years  ☐ 9-12 years  ☐ More than 12 years

Q.11: Where is Your House Situated in the Quarter?

☐ At the head of the street  ☐ Near the head of the street

☐ In the middle of the street

Q.12: How The House In The Current Location Was Received?

☐ Through lot  ☐ Exchange location with somebody else

Q.13: Why have you Chosen a Readymade House (Government House)?

A- Waiting Period Is Less than for a Plot

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

B- The government house covers the needs and the desires of the family

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

C- The suitable location of the City made me chose this kind

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more
D- Monthly Portion of Government Houses is Less than The Portion of Plots

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

E- Suitable for Me and My Family after Making Minor Modifications

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

F- To Avoid Having Construction Problems When Building a Plot

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

G. Other reasons:
...........................................................................................................................................................................................
...........................................................................................................................................................................................

Q. 14: Did The PAHW Take your Opinion About the Design of the House?

☐ Yes  ☐ No

Q.15: Do You Think that the Government House Can Fulfill the Needs of the Family That has a Handicapped Member?

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

Q. 16: Have you Made Any Total Or Partial Modifications In The House?

☐ Yes  ☐ No

Note: If your answer is (No) could you please answer the question 17 then move to question 22 until the last question, if it is (Yes) could you please answer questions from 18 until the last one.
Q. 17: What is the Reason of Not Having Made Modifications in the House?

☐ The Monthly Income doesn't allow  ☐ The law doesn't allow

☐ Absolutely satisfied with the design and the shape of the house

Q. 18: Did You Obtain the Agreement of PAHW before Making Modifications to your Government House?

☐ Yes  ☐ No

Q. 19: Who made these Modifications for you?

☐ Accredited engineering company  ☐ External contractor

Q. 20: How Much Money Did you Spend On Modifying your House?

☐ 5000 KWD  ☐ 5000-10000 KWD

☐ 11000-20000 KWD  ☐ More than 20000 KWD

Q. 21: Type of Modification

☐ External shape

☐ Electric works (internal and external light)

☐ Sanitary works (kitchen and bathroom)

☐ Wood works (doors)

☐ Aluminium works (windows and kitchen)

☐ Painting and decoration works

☐ Adding a building (e.g., expansion of the saloon)

☐ External works
External metallic door

Adding a third floor

Removal of internal walls for expanding rooms

Removal of a column for expanding rooms

Changing 100% (destruction of the house then building a new one)

Other things:............................................................................................................................

Q. 22: Would You Choose the Government House again if you had Another Chance to Choose?

☐ Yes          ☐ No          ☐ I don’t know

Q.23: If You Were Free to Choose Again, Which Option Would You Choose?

☐ Government house    ☐ Flat    ☐ not    ☐ Concrete framework (if available)

Q. 24: If The Government Designs Houses According to the Citizen's Needs and Wishes and Each Citizen has the Right to Choose Additional Characteristics Such as: (Basement, Third Floor, Beautiful External Shape, Elevator, …..etc.) Will you Agree and Pay for them?

☐ No        ☐ somehow        ☐ I agree        ☐ I agree more        ☐ I don’t know

Q25: In General, are you Satisfied of the Current House?

☐ Satisfied        ☐ Satisfied after making some changes        ☐ Unsatisfied

Q. 26: Is The Fahad Al-Ahmad City Area Considered To Be Excellent Concerning Other Services, Such As Schools, Clinics, And Mosques?

☐ No        ☐ Somehow        ☐ I agree        ☐ I agree more
Dear Fahad Al Ahmad City Resident,

I am Talal Lafi Alazemi, I doing my Ph.D at the University of Manchester in England. The aim of the research is to develop a framework based on VE and its Job Plan to contribute to the development of more satisfactory housing designs that will benefit all stakeholders in this issue, including the PAHW and the public.

The following questionnaire is part of my study and to achieve the aims of the questionnaire, it would be greatly appreciated if you could spend some time, to answer the questions honestly and clearly. I am so interested in knowing some information about the Government Housing Project. The results of this research will help PAHW to improve housing designs which will satisfy the resident’s needs. All information will remain strictly confidential.

Please tick the boxes in each question, which apply to your situation.
### FIRST SECTION: GENERAL INFORMATION

Q. 1: Gender

- [ ] Male
- [ ] Female

Q. 2: Age

- [ ] 20 -30
- [ ] 31-40
- [ ] 41-50
- [ ] 50+

Q. 3: Marital Status

- [ ] Married
- [ ] Separated
- [ ] Widowed
- [ ] Single

Q. 4: Occupation

- [ ] Employee
- [ ] Responsible
- [ ] Free business
- [ ] Retired
- [ ] Unemployed

Q. 5: Qualification

- [ ] Primary
- [ ] Intermediate
- [ ] Secondary
- [ ] Diploma
- [ ] University
- [ ] Master
- [ ] PhD

Q. 6: Monthly Income

- [ ] Less than 500 KWD
- [ ] 500 -1000 KWD
- [ ] 1000-1500 KWD
- [ ] 1500-2000 KWD
- [ ] More than 2000 KWD

Q. 7: Number of Family Members (Dependents)

- [ ] 2
- [ ] 3-4
- [ ] 5-8
- [ ] More than 8 members

Q. 8: Is There Any Disabled In The Family?

- [ ] Yes
- [ ] No
SECOND SECTION: INFORMATION ABOUT THE HOUSE

Q.9: What Kind of Housing Units Have You Applied For?

☐ Plot  ☐ House of government  ☐ Flat

Q.10: How Long Have You Waited to Get Your Plot?

☐ Less than 5 years  ☐ 5-8 years  ☐ 9-12 years  ☐ More than 12 years

Q.11: Where is Your Plot Situated in the Quarter?

☐ At the head of the street  ☐ Near the head of the street

☐ In the middle of the street

Q.12: How The Plot In The Current Location Was Received?

☐ Through lot  ☐ Exchange location with somebody else

Q.13: Reason for choosing plot:

A- Designing the house according to the family's needs and desires

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

B- There are too few rooms in the government houses and the rooms are not large enough

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more

C- Lack of Basements in the Government Houses

☐ No  ☐ Somehow  ☐ I agree  ☐ I agree more
D- Government Houses Do Not Fulfill the Needs of Handicapped Family Members

☐ No          ☐ Somehow          ☐ I agree           ☐ I agree more

E- The Monthly Income Allows Choosing a Superb Design Different from the Neighbours’ Houses

☐ No          ☐ Somehow          ☐ I agree           ☐ I agree more

F- To Avoid having Modification Problems that Occur When Choosing the Government House

☐ No          ☐ Somehow          ☐ I agree           ☐ I agree more

G- Other reasons: ………………………………………………………………………………………………………………………

Q. 14: Do you have an Experience in Construction?

☐ Yes          ☐ No

Q.15: Who Built the Plot?

☐ Accredited engineering company ☐ External contractor ☐ Both

Q. 16: Have you Faced any Problems During Building?

☐ No          ☐ Somehow          ☐ Yes           ☐ lot of problems

Q. 17: Would you choose the Plot Option Again if you had Another Chance?

☐ Yes          ☐ No          ☐ I don’t know
Q. 18: If you were free to choose again, what kind of a house will you choose?

- Government house
- Flat
- Plot
- Concrete framework (if available)

Q. 19: If the Government Designs Houses According to the Citizen's Needs and Wishes and Each Citizen has the Right to Choose Additional Characteristics Such as: (Basement, Third Floor, Beautiful External Shape, Elevator, …..etc.) Will you Agree and Pay for them?

- No
- Somehow
- I agree
- I agree more
- I don’t know

Q. 20: In General, are you Satisfied of the Current House?

- Satisfied
- Satisfied after making some changes
- Unsatisfied

Q. 21: Is The Fahad Al-Ahmad City Area Considered To Be Excellent Concerning Other Services, Such As Schools, Clinics, And Mosques?

- No
- Somehow
- I agree
- I agree more

Thanks a lot for your assistance

*Talal Lafi Alazemi*
APPENDIX 3: PAHW SMI-STRUCTURED INTERVIEW

DESIGN DEPARTMENT:

1- What is the percentage distribution of government houses, flats and plots in the past and what is the forecast for these?

2- Who has the responsibility in PAHW to design the government house? Is it just the design department or are others involved? If others, please provide details.

3- How old is the current design? How frequently are the designs modified or new ones done?

4- What was the reason towards changing the designs? Is it the shape or growing demands of the end-user?

5- Is post occupancy evaluation (POE) used to inform the implementation of future design strategies?
   - If so, please explain the POE process
   - If no, please explain how end user expectations are managed?

6- Furthermore, is Value Engineering/Value Management techniques used to support the design of government Housing?
   - If yes, are these designs input into the VE process before approval? Is VE a core process of PAHW?

7- How is construction procurement managed, particularly in context of contract award and pre-qualification criteria?
   - How do you award the contracts? Is this based on cost or value?
   - How is the construction process overseen within PAHW?

8- After practical completion of the properties and occupation by the end-user takes place, does PAHW check the customer satisfaction? If so, what is the process?

9- Are the end-users allowed to make modifications immediately after houses are delivered? If so, what kinds of changes are allowed?
   - Can you please provide few examples of the type of changes / modifications made?

10- Does PAHW keep a record of the various types of changes implemented to the houses immediately after delivery? Are these evaluated for economic effectiveness??
11- Have any major problems occurred from changes / modifications?

If so, please provide a few examples.

12- Is the concrete framework successful?

If so, why?

If no, why?

13- What are the advantages / disadvantages of the Govt. house, flats, plots and framework?

14- According to you, what steps should PAHW take towards stopping the changes done by end-users?

APPLICATION DEPARTMENT:

1- What are the basic requirements for applying a house / flat / plot / framework?

2- Do people have the option of choosing between Flat, Govt. house, Plot and Framework in advance? Can their choice be changed at a later stage (before receiving)?

3- According the current statistics, how many families are in the waiting list? What is the minimum and maximum waiting time to get their flat / house / plot / framework? Does the waiting time differ between flat / house / plot / framework?

4- Could you please explain the various stages that an individual has to go through for getting a Flat / House / Plot / Framework?

5- What are the future projects and how many housing units and types in these projects?

6- Based on the current waiting period, are the future waiting period expected to,

   (1) Increase (by how many years)
   (2) Decrease(by how many years)
   (3) No change

7- How does PAHW determine the percentage of housing units in these projects (Government House, Plot, framework and the flat)?

8- What are the roles of the private sector in these projects?

9- Do you take the end-user opinion in the design stage in these new projects? If so how?

10- What is the role of VE in these projects?
APPENDIX 4: PAHW SMI-STRUCTURED INTERVIEW (2nd ROUND)

This research focuses on the feasibility of implementing the “SAVE International” Job Plan for Value Management in context of the PAHW, as a potential solution to improving the levels of end-user satisfaction and acceptance of “readymade” government houses. The “SAVE Job Plan” consists of three main stages; (1) Pre-workshop activities stage, (2) Workshop / Study (Value Job Plan) stage and (3) Post-workshop / Study stage.

It is pertinent here to explain briefly the rationale behind the selection of the SAVE Intl Job Plan methodology within PAHW. Anecdotal evidence and that gained through observation suggests that citizens make changes to readymade government houses immediately after receiving them. This has cost implications to both parties. In addition to financial implications, the changes are also time consuming. Housing options are received by citizens after a long waiting period between 10-15 years. Houses provided to citizens of Kuwait are large, spacious and constructed using modern components and facilities. The question one must then ask is, why do citizens take upon the task of making changes immediately after occupation of the dwelling?

Previous interviews with PAHW representatives provided information on housing units provided to the citizens of Kuwait. A subsequent questionnaire survey and semi-structured interviews with occupants who had received either plots or government houses revealed significant levels of dissatisfaction with government houses. Houses in Kuwait are built with many bedrooms and all the rooms including the bedrooms are spacious. Especially when these are compared with Jordan the readymade government houses in Kuwait are spacious and luxurious. Yet the house owners are dissatisfied. This raises a question as to as to the reason for dissatisfaction. The research carried out so far has facilitated an understanding of why occupant dissatisfaction towards government readymade exists and offers signposts to how improvements may be made in future procurement situations.

The research identifies the supply and demand side. In this research the PAHW is the supply-side that provides the citizens of Kuwait with housing needs and the citizens are the demand-side who need houses that should meet their expectations and satisfaction. Current scenario with
regards to readymade government houses – supply-side is not able to meet the requirements of the demands-side, thereby high cost implications and long time-consumption is being incurred from both sides. A solution is required to meet demand-side requirements by supply-side. Solution recommended is Value Job Plan by SAVE International with end-user / citizen participation in various stages.

Initial questions:

- Does PAHW take end-user / citizen opinion on house design into consideration before starting a new development?
- How is this data collected? What methods are used to garner information and knowledge from potential occupants?
- On an average, how many potential occupants are sampled?
- What kind of data is collected?
- Are the various housing options explored with occupants and is their opinion solicited on potential design improvements if their needs/requirements are not met?
- How are these opinions considered within internal procedures at PAHW?
- What typical changes are suggested by potential occupants and are these usually implemented?
- How many such changes have been carried out during the past 10 years, resulting in new or radically different housing design?

The next section is designed to consider some specific questions based on the SAVE Value Job Plan. A brief of each stage and its phases is provided prior to identification of specific questions.

**STAGE 1: PRE-WORKSHOP ACTIVITIES**

- Are end-users / citizens who are to receive the readymade houses identified prior to collecting the end-user / citizen opinion on house design?
- Are appropriate end-user /citizen information about the project gathered?
- Once the project scope and objectives are identified, is an exact estimate on number of readymade houses, time, cost in addition to schedule drawn up?
- Are benchmarking with other similar projects in the country and benchmarking against other Middle East countries conducted?
- Are contractors and end-users allowed to meet and discuss the needs of the readymade houses along with PAHW?
- Is a particular project team formed for the new city?
- Is a physical model of the city created for end-user review?
- Once the end-user interaction has been competed in this pre-workshop activities, are these discussed and finalised with higher management to gain approval?

**STAGE 2: WORKSHOP / JOB PLAN ACTIVITIES**

This stage consists of various phases – information phase, function analysis phase, creative phase, evaluation phase, development phase and presentation phase.

The purpose of information phase is to understand the current state of the project and constraints that influenced project decisions.

The purpose of function analysis phase is to understand the project from a functional perspective; what must the project do, rather than how the project is currently conceived.

The purpose of the creative phase to generate a quantity of ideas related to other ways to perform functions.

The purpose of evaluation phase is to reduce the quantity of ideas that have been identified to a short list of ideas with the greatest potential to improve the project. In other words, of the many ideas which are worth spending quality time to further develop.

The purpose of the development phase is to further analyse and develop the short list of ideas and develop those with merit into value alternatives. Outcome identified in this stage is for the value study team to create alternatives and low, medium, and high-risk scenarios and offers these alternatives to senior management as options that address the Pre-Workshop strategic objectives.
**Presentation phase**

My focus in this stage is particularly on presentation phase where alternate values are presented to management team and other project stakeholders or decision makers. According to SAVE International, this phase mainly involves project team and senior managers. Here management is presented with innovative scenarios to select value alternatives for implementation which are exchanged with project team. Through this management can take final decisions and a formal report is prepared.

Similar to the involvement of end-users in the pre-workshop / study phase, I propose the involvement of end-users in this phase. As the management is able to receive innovative ideas and various alternatives from the project team, it is not necessary that these ideas fit end-user exact needs. Therefore:

- **Do you recommend the participation of end-users within this stage?**

For participation of end-users, PAHW has to identify the potential occupants. Once they are identified, people who wish to receive government readymade houses needs to be segregated. Only through this process can houses that fit end-user requirements can be allotted. This would be contradicting the current option followed which is the ‘lot-system’ of issuing the plot and readymade houses. The problem with this is that the lot-system is done after the construction has been completed and for final distribution of the plots or readymade houses. PAHW should identify the end-users who want government readymade houses and the identified. To stress further this identification has to be done prior to stage 1.

- **Is PAHW able to identify the number of citizens / end-users who opt for government readymade houses prior to constructing the house?**
- **If not, would PAHW be able to do this and according to you what is the recommended method in identifying the end-users who wish to have government readymade houses?**
- **Once the identification is done will PAHW be able to bring these end-users for a second interaction / presentation phase?** (The first interaction was in stage 1 where opinions of the end-users were collected).
The objective of the 2nd interaction and involving end-users in the presentation phase is to find out if the design changes suggested by end-users in stage 1 have been implemented. Any modifications that are recommended by the end-users during the presentation phase should be taken into consideration, till end-user satisfactions on the designs are reached.

- Would PAHW be able to take such a step?
- If not, what are the hurdles that you foresee?

Once the changes are agreed, end-users should sign a document with PAHW that no changes will carried out on the new homes that they receive.

- According to you, would PAHW be willing to take this step?
- Would the end-user be able to take such a step?
- If not, can you please provide some hurdles that you perceive?

The final stage in the Value Job Plan are the Post-Workshop Activities that ensure that accepted value alternatives are implemented and that the benefits projected by the Value Study have been realised. This stage has two main phases – implementation and follow-up activities. This is where PAHW could review the final changes of the design and start with the construction and subsequent allocation.

- According to you, is PAHW following-up on houses that have been issued?
- Are changes that are being made known to PAHW?
- Is it necessary to take PAHW permission before any changes are being done?
- If so, is this being done?

Follow-ups would ensure to gather details on end-user satisfaction with the houses and also in identifying any drawbacks that would have been observed by end-users. It would also help PAHW to make sure that end-users have not made any changes to the new houses.

- According to you, how important is the follow-up?
On the application of value engineering in Kuwaiti housing schemes

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ABSTRACT

The literature suggests that the initial applications of Value Engineering (VE) techniques could be traced back to the mid-20th century manufacturing base in the United States (US). Within the UK, 1966 witnessed the creation of the VE Association (Kelly et al., 2007), with similar progress made in Australia, Japan and China (1978) and Saudi Arabia (1980’s) (Alalshikh et al., 2008). Whilst there is evidence that VE has been successfully applied in Saudi Arabian projects (Al-Sayid, 2008), applications of VE methodologies in the Emirates are sporadic, particularly in the Kuwaiti context. The absence of a clear vision, recognition of the potential importance and effectiveness of VE combined with a lack of encouragement from central government are possible explanations why this is the case (Shublaq, 2008).

Kuwait’s social housing provision is supplied by the Public Authority of Housing Welfare (PAHW). PAHW provides a number of housing options to potential occupiers, but evidence suggests that satisfaction levels in standard PAHW properties are low, when compared to similar arrangements elsewhere. In order to overcome the problems of low satisfaction and inadequate fitness of purpose, this paper proposes a “front-end” VE approach to housing design specification. Whilst the evidence suggests that dwellings are constructed by the government using high quality materials, problems with the design and configuration lead to occupant-driven modification immediately after handover. Through the implementation of a methodology described here, occupier involvement in house design is encouraged at the early state with the expectation that satisfaction levels will increase whilst reducing the costs incurred by both the government and end-users when properties require re-configuration.

The methodology used to collect empirical data involves a combination of quantitative and qualitative methods. Data has been collected from the residents of FahadAlahmad city in addition to professionals within PAHW. The residents included those who opted for government “readymade houses” (essentially standardised design) and those that opted for plots (in the latter option the occupants design and construct the dwelling from scratch). The data collection consisted of four distinct phases, and quantitative analysis is used to draw inferences from the data.

Keywords: Value Engineering, Value Job Plan, Kuwait Government Housing Schemes, Public Authority of Housing Welfare (PAHW), Customer Satisfaction.
1. Value Engineering

Value Engineering (VE) first emerged in the US manufacturing sector; the General Electric company implemented an approach to facilitate an evaluation of materials and components that were used to replace more scarcer materials used in the production process. In the late 1960s, VE techniques were applied to construction and civil engineering projects (Zimmerman and Hart, 1982). The late 60’s to early 70’s witnessed rapid “take-up” of VE internationally, with the UK Value Engineering Association created in 1966 (Kelly et al., 2007). VE also emerged in Australia and Japan in the middle to late 1960s and later in China (1978) (Alalshikh et al., 2008). In the middle-east, Saudi Arabia began to utilise VE in the mid-1980s (SGVE, 2007).

Al-Sayid (2008) reflects on the important role of value engineering in projects whilst Zimmerman and Hart, (1982) reflect more on the soft-skills improvement capability of VE in their proposed definition:

“Value engineering is a proven management technique using a systematised approach to seek out the best functional balance between the cost, reliability, and performance of a product or project. The program seeks to improve the management capability of people and to promote progressive change by identifying and removing unnecessary cost”

The literature reveals widespread ambiguity in the use of appropriate terminology (whether this be Value Engineering or Value Management). Other terms used include Value Planning, Value Methodology and Value re-engineering. According to Kelly et al. (2007), the term Value Engineering (VE) was coined in the US by the Society of American Value Engineers (SAVE) with an emphasis upon construction and civil engineering projects. The Value Methodology (VM) is used by SAVE to focus on cumulative processes including value analysis, value engineering, value management, value control, value improvement and value assurance. Similarly, in the UK, the term VM is used to describe the various processes that include VE. Value Management is advocated as a tool that focuses upon the value of the design and construction stages within a project.

**Figure 1: VE model from SAVE International**

(Source: SAVE, 2007)
As emphasised earlier in this paper, VE is used frequently in construction projects. In the Kingdom of Saudi Arabia, the idea of Value Engineering emerged from the defence sector in the early 1980’s - the General Administration of Military Works within the Ministry of Defence and Air were early proponents of the methodology. The new “paradigm” developed sufficiently that in 1985, the first Value Engineering continuing program was established through the creation of a dedicated service-stream within the organisation (Al-Salmi, 2006).

An important aspect of most VE methodologies is the “Value Job Plan” – which comprises of three distinct phases. Stage 1 is the pre-workshop / study stage and consists of pre-study activities, which are designed to scope the landscape of the study. Stage 2 is the workshop / study stage and consists of six phases – information phase, function analysis phase, creative phase, evaluation phase, development phase and presentation phase. Stage 3 is the post-workshop / study stage and consists of an implementation phase and follow-up activities. Figure 1 shows a diagrammatic representation of the VE Job Plan, highlighting with the stages and phases described above.

In this paper, the research will build upon the Value Job Plan that has been designed by SAVE International. In a conference held in 1998 by SAVE, The Gulf Chapter (SGVE) was approved and established. The Gulf Chapter has held several conferences in the region and the last was held in Jeddah in April 2008 (SGVE, 2008).

2. Kuwaiti context

The case-study has been conducted in Kuwait, which is a relatively wealthy country with primary GDP derived from oil products and exports. Geographically, Kuwait is a small, oil-affluent nation located at the top of the Gulf, with powerful or large neighbours on its borders – i.e. Iraq to the North, Saudi Arabia to the South, and Iran to the East (GIH, 2009).

The main business of Kuwait is hydrocarbons, with a substantial reserve of 94 billion barrels (approximately) of crude oil which accounts for about 10% of the present oil reserves in the world. This contributes to a significant portion of 90% of the nation’s petroleum export income, 75% of the government’s revenue, and about half of the state’s GDP. The government started spending on the nation’s refining power and gained control of the country’s reserve of hydrocarbons – away from MNCs (multinational corporations). The state started to take over all four major oil corporations operating in Kuwait under its control in the years running up to 1979, beginning with a 60% take-over of KOC in 1974. With all four corporations under its control, the government set up a new organisation with the name of Kuwaiti Petroleum Corporation (KPC) in 1980.

The population of Kuwait as of the year 2008 was around 3.4 million (with 2.3 million being expatriates). The business environment provides opportunities to expatriates communities, particularly those from Asian countries. In addition to this, Kuwait has a population mix from European and Western countries (GIH, 2009).
3. Housing projects in Kuwait

Social housing projects in Kuwait are managed by the Public Authority of Housing Welfare (PAHW). There are a number of options available to those who qualify for housing provision by the state; these are “plots”, “government readymade” (the term readymade in common parlance is “standardised”) houses and “flats”. Any citizen is eligible to apply for a housing option with the sole proviso that the applicant is married. There may be other sub-qualification criteria in addition to this. The following sections describe the nature of each of the options available.

3.1 Plots

A plot is defined by PAHW as “an open [segment of] land of 400m²”. Those citizens who select this option are automatically eligible for a housing loan of KWD 70,000 (US$ 250,000), which should cover, it is expected, the construction costs of the house. The house loan is void of interest charges and the repayment vehicle is similar to that of a standard mortgage payment schedule in the UK (typically 25 years). Plots provide potential occupiers with a degree of freedom in designing a house, which should meet their requirements and expectations. Due to the freedom of design and adequate provision of financial support to fund the construction process - this tends to be the preferred choice, particularly with large families. There are, however, a number of problems associated with this option. Most notably is the very long “waiting period” (no less than 15 years) and poor-located to civic amenities (the nature of the plots is such that these tend to be located in outlying districts where space is more readily available). It is the first reason however that tends to be the main driver behind some potential occupiers electing the “readymade” option, which is typically received between 8-12 years. Al-Khaiat et al., (2005) provide some of the dominant reasons (through an empirical study) for plots being the first preference with the citizens of Kuwait.

- To choose a design that is different from the neighboring one (100%);
- To avoid making changes in the unit if the completed house system was selected (84%)
- The building area and number of rooms was not enough in the completed house (74%)
- To have better finishing (70%)
- To build a basement (66%)
- Because the financial situation of the owner was good (50%).

3.2 Government Readymade Houses

The government readymade houses are typically in the order of 400m² GIFA and are distributed as per eligibility of the applicant. Those who opt for the readymade option are eligible for a housing loan of KWD 55,000/- (US$ 200,000), which is interest free, and to be repaid over a 20 years. This amount is supposed to cover the needs of furnishing and fitting of the house. Various studies (Al-Khaiat, 1989, Al-Khait et al., 2005; Al-Saeed, 2007) which, have examined social housing provision in Kuwait, confirm the general levels of dissatisfaction with these properties for reasons such as. Perceived poor quality design, insufficient number of rooms, lack of basement space, lack of third floor accommodation and sanitary appliances/fittings specified in bathrooms and kitchens. Consequently, changes are made to the houses immediately upon occupation. In addition to the allotted housing loan by the government, the citizens add further amounts of private funds to execute additional changes. According to PAHW (2007), the total numbers of housing project are indicated in table 1.
Table 1: Total executed PAHW projects

<table>
<thead>
<tr>
<th>Residential Units</th>
<th>Public Buildings</th>
<th>Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houses</td>
<td>Police stations</td>
<td>Elementary</td>
</tr>
<tr>
<td>46,646</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Plots</td>
<td>Mosques</td>
<td>Intermediate</td>
</tr>
<tr>
<td>24,210</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Apartments</td>
<td>Healthcare centers</td>
<td>Secondary</td>
</tr>
<tr>
<td>1,088</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Concrete Framework</td>
<td>51</td>
<td>TOTAL</td>
</tr>
<tr>
<td>TOTAL</td>
<td>TOTAL</td>
<td>268</td>
</tr>
<tr>
<td>71,995</td>
<td>268</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the three options outlined above, the government has also “experimented” with a black concrete frame design. This is almost a “blank canvas” option where the structure is provided to a standardised design but internal specifications and the second-fix work is left open for “negotiation”. Nevertheless, the concrete frame option still restricted the overall size of rooms and does not address the lack of basement and furthermore, implies a greater degree of involvement from the potential occupiers in understanding the nature of the construction. Therefore, potential occupiers tend to be of the opinion that it is preferable to build “from scratch” or make modifications to the readymade government house design.

The findings of Al-Khaiat et al., (2005), with regard to the selection of plots, are consistent with the initial findings in this research, and offers some insight into the reasons why modifications are made immediately upon occupation. General dissatisfaction, lack of adequate rooms, size of rooms, design of the house, and lack of basement have been identified as some of the principal reasons as to why changes are deemed necessary.

3.3 Flats
These are housing units with a typical GIFA of 400m² (Al-Saeed, 2007). According to PAHW (2007) only 1088 flats have been occupied by citizens in Kuwait from the inception of the social housing scheme in 1954. The project to deliver the flats, called Al-Sawaber, is arguably a failure given the Kuwaiti propensity for single dwelling constructions. The Al-Sawaber project is a combination of 33 eight-storey buildings with 524 apartments in total. In addition to the general cultural dissatisfaction of living in flats, the location of the sites was questionable given the high density of traffic that was subsequently created leading to some problems with congestion etc. Only 300 Kuwaiti citizens opted for the flats and the reason chiefly identified by Al-Khaiat (1989) was that this was simply due to the shorter waiting time over readymade government houses and plots.

4 Methodology
A mixed-methodology approach is adopted in this study, which spans over four phases. The study was focused within the FahadAlahmad city which comprises of over 2000 Kuwaiti homeowners. FahadAlahmad city was one of the most recent housing developments at the time of this study. The latest “city” to be developed by PAHW is Al-Nahda and feedback on this city was gained from PAHW during the fourth phase of data collection.

The first phase included selection of respondents from FahadAlahmad city. The selection was random and included those who had opted for readymade government houses and those that had selected plots. In both cases the houses were ready and occupied. In selecting respondents from both readymade government houses and plots an opinion on construction, changes and difficulties encountered in
renovating / constructing the houses to the homeowners’ desirability was gathered. Data collected from these respondents was obtained through a questionnaire survey with bounded multiple choice answers and were distributed and received through email and personal delivery methods to ensure a good sample.

The second phase was carried out after the analysis of the quantitative data using SPSS software. Method used was qualitative and included respondents from who took part in the survey in phase one. These respondents were selected at random and with their willingness to participate in the survey. Pre-designed questions guided the personal one-on-one interviews. These questions were designed based on the SPSS quantitative results.

The third phase included respondents from PAHW. These respondents were selected from the planning, design, construction and administrative departments. Data was collected using pre-designed questions, and the respondents were provided with an opportunity to speak openly. Therefore the approach was semi-structured. Results of phase one and two of data collection from residents of FahadAlahmad city fed directly into the design of some of the interview questions with PAHW.

The fourth and final phase included personal interviews with managers of planning, design, construction and administration departments in PAHW. Results of previous data collection phases were included in this interview. Additionally, data on the latest city, Al-Nahda, was collected. Results of all four stages are being discussed in the subsequent sections.

5 Analysis and Discussion of Kuwaiti Housing Schemes

Empirical evidence has indicated occupier dissatisfaction in the readymade government houses, although these units have been constructed using relatively high quality materials and components with generous spatial proportions. When respondents were asked if they would opt for government houses if provided a second opportunity, 50.0 percent of them stated that they would not with 13.8 percent remaining doubtful. Houses are allotted through lots. Through the lot system, eligible citizens are allotted numbers after fixing a specific date and these numbers are being picked on random basis by responsible authorities. Due to this, neither is the design of the house nor the location of the house in the city known to the citizens till a few hours prior to allotting the houses by PAHW.

Further, the houses are received after a long waiting period of 10-12 years. Often the houses do not meet many of the requirements of the citizens and therefore the new home owners make changes immediately upon receiving them. In order to make the required changes some of the existing sections have to be removed to add new ones. Table 2 shows the type of changes that have been undertaken by the new home owners immediately upon receiving the readymade houses.

The changes cost the new home owners large sums of money and in many instances exceeding over KD 20,000 (US$ 68,000). The problem of wasting government money by removing existing construction and home owners incurring costs by making changes to new homes was found due to the lack of interaction between potential home owners and PAHW. It was indicated by a large majority (96.6 percent) that PAHW did not take their opinion on the design of the houses. Therefore, citizens come to know the whereabouts and design of the house only after they receive it.
Table 2: Changes made to government readymade houses by home owners

<table>
<thead>
<tr>
<th>Type of modification</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painting &amp; decoration works</td>
<td>94.4</td>
</tr>
<tr>
<td>Electrical works</td>
<td>88.9</td>
</tr>
<tr>
<td>Sanitary works</td>
<td>58.3</td>
</tr>
<tr>
<td>External works</td>
<td>47.2</td>
</tr>
<tr>
<td>External metallic door</td>
<td>47.2</td>
</tr>
<tr>
<td>Wood works</td>
<td>38.9</td>
</tr>
<tr>
<td>Aluminium works</td>
<td>36.1</td>
</tr>
<tr>
<td>External shape</td>
<td>30.6</td>
</tr>
<tr>
<td>Removal of internal walls for expanding rooms</td>
<td>25.0</td>
</tr>
<tr>
<td>Adding a building (expansion of the saloon ...etc)</td>
<td>22.2</td>
</tr>
<tr>
<td>Adding a third floor</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Despite the dissatisfaction of the readymade government houses since many years, many citizens opt for government house even though they have made their initial selection with the PAHW for plots. Survey indicated that 79.3 percent of the citizens opted for plots yet they selected government readymade houses. The change of choice pertained to the waiting period. The waiting period for government readymade houses was less compared to plots. As stated earlier readymade houses could be received in a span of 10-12 years, but plots could be received only between 12-15 years or more. Therefore, citizens preferred to select readymade houses and make the needed changes that would meet their needs. Some of people opted readymade house because the location of the city; if he have the right to take plot in city far from his family and the closed city he can take only readymade house the majority of people with take readymade house in the closed city. Ideal location of the city is where the travelling time to office and other areas are less and where adequate facilities for shopping and entertainment are present.

Home-owners who did not make extensive changes were typically those families with 4 or 5 dependents and who did not have adequate monthly income to make substantial changes. These individuals also stated that the houses met most of their immediate requirements. It could thus be observed that the houses provided a standard of accommodation that was acceptable to occupiers but not desirable, but it is clear that the existing designs meet the core needs of a typical family. Further interaction with the citizens would help PAHW gain a better understanding into citizen requirements and provide readymade houses that better suits home owner needs. This was verified by 77.6 percent of the respondents. And it was also added that they citizens are willing to put in their own money so long as PAHW can construct houses as per the needs and expectations.

Some of the requirements needed to be carried out in the design phase. Requirement of basements, third floor and large ‘Dewaniya’ were indicated as important. As per some of the home owners who took part in the survey ‘Dewaniya’ held an important place that it was build to hold large number of people and two-storey. Dewaniya is a meeting place for Kuwaiti’s and it upholds a long tradition and custom. In olden days the men folk used to meet every day during the evenings to discuss various topics. This is being followed even today in the modern society. Personal topics, business matters and even politics are
being discussed today in the Dewaniya on a daily basis. A large Dewaniya is also matter of pride and status within the Kuwaiti community. Therefore, it is a fundamental part of the Kuwaiti lifestyle. Citizens indicated their willingness to spend their own money along with the government finance to have these features added to their homes.

PAHW has to ensure that the government houses, in which large sums of money are being invested, should be safeguarded. As it has been clearly identified that most of the end-users make changes immediately upon receiving the house, PAHW monitoring and supervision will create an awareness within the end-user and they will be discouraged in making changes. Further if the houses are designed as per end-user needs and a contract is signed between the PAHW and end-user changes will be reduced and can even be avoided. This can be done only if end-user requirements are identified and considered in the new designs. End-user satisfaction level should be met during the presentation phase of VE Job Plan itself. When customers know what they are getting, their expectations will meet their satisfaction level.

5.1 Problems Identified by Homeowners

The empirical study revealed various problems faced by homeowners. Focusing on these problems made the need for a VE Job Plan within the PAHW more evident, given its role in providing ready-made government houses to the citizens of Kuwait. Some of the major problems are discussed here with recommended solutions.

From the initial stage, there was a failure to identify qualified homeowners and collect the required information and their opinions. The PAHW conducts a general survey which may or may not include end-users who will receive homes. In addition, some end-users participating in the survey would be expecting to receive plots and therefore build their own homes. Therefore, the opinions provided may not be accurate. Furthermore, homeowners are not provided with the actual design of the houses, which would allow them to understand features and indicate their needs. The problems identified and recommended solutions will be discussed below.

*The government not taking into account end-user opinions and homeowners not being identified or involved:* The absence of end-user opinions or options to provide for needs have been identified. The design of government houses starts and ends with the PAHW, with very little or no involvement from end-users. Only a general survey is conducted after the designs have been made and distributed to people who may or may not take government houses. Therefore it can be biased and incorrect. Moreover qualification for the survey is a 60% vote of approval leaving the remaining 40% uncertain. Therefore, this is a survey with limited response and no one hears the opinion of the end-user.

The recommended solution is that the PAHW should first identify people who will be receiving plots and houses in the new city. Once appropriate homeowners are identified, the PAHW should invite all of them to evaluate the house designs proposed for the new city. These designs should be explained in detail and time should be provided to customers to study the designs and return with comments. In a subsequent meeting between the PAHW and end-users, suggestions should be collected and discussed. Based on the initial discussions, the PAHW should take these new proposed changes from customers and study their feasibility in terms of construction and costs.
**Location of city:** Homeowners prefer to stay close to other populated cities within easy reach of their offices and other areas of Kuwait, with minimal travel time. The location of the city where new houses will be located is therefore influenced by these factors. For example, the plot may be an option available but the location of the city may be far away, while on the other hand a government house is available at a location close to major townships. Under such circumstances, citizens will prefer to change their choice from the preferred choice of plots to government ready-made houses.

A proposed solution would be for the PAHW to disclose the location of the city to homeowners during the start phase itself. In doing so, citizens interested in living there will be revealed and the PAHW can identify the right homeowners. This identification is also important for the PAHW to take back the right feedback from its customers. Therefore disclosure of city location should be considered important and carried out in stage one of the VE model.

**Lack of intention to build from scratch:** The empirical study revealed that a government house is not the preferred choice due to lack of satisfaction with design. But a certain percentage of people select a government house in order to make the necessary modification to suit their tastes, rather than building from the foundation up. Because of this limited requirement, people prefer not to select a plot and choose instead a government house. The PAHW should consider this fact and take it as an opportunity to influence citizens in choosing government houses with end-user needs and satisfaction.

Once the PAHW is able to convince the majority of customers, others who are reluctant will be encouraged to change their mind. Through this process, the PAHW will be able to gain the confidence of customers and reduce unnecessary expenses incurred on houses by end-users.

**Lack of monitoring and supervision:** Once houses are issued, it was understood that the PAHW does not conduct any follow-ups to understand if the houses meet homeowner needs and if not what is missing. The PAHW also needs to identify the type of changes that homeowners have made to new homes.

The PAHW has to ensure that government houses, in which large sums of money are being invested, should be safeguarded. Since it has been clearly identified that most end-users make changes immediately after receiving houses, monitoring and supervision by the PAHW will make end-users aware and they will be discouraged from making changes. Furthermore, if the houses are designed according to end-user requirements and a contract is signed between the PAHW and end-users, changes will be reduced and can even be avoided. This can be done only if end-user requirements are identified and considered in new designs. A certain level of end-user satisfaction should be met during the presentation phase of VE itself. When customers know what they are getting, their expectations will match their level of satisfaction.

**Method of distributing the location:** Citizens currently receive their homes through lots; therefore citizens are completely unaware of the location of the house until they receive it. Some citizens, many of whom have relocated to other districts by paying significant premiums in exchange, have stressed the importance of location. Furthermore, the choice of location is limited as only the first few are lucky enough to select their location and house design according to their needs.
An option would be for PAHW to disclose the location of the house during the presentation and after the designs are accepted. In doing so, both the location and house design is verified and understood by the end-user, thereby ensuring customer satisfaction.

5.2 PAHW Interview

Data collected from managerial and senior staff within PAHW revealed that they are aware of these problems and, based on their random survey, they have been able to make new designs. One of the solutions that were adopted many years ago by the PAHW was the black concrete framework. With this option, the PAHW would provide the framework and the citizen could build the interiors to their liking including the paintwork and other features. From a recent interview, it was understood that this had not been a successful option and it has been discontinued by the PAHW. From the data collected from homeowners, the reasons for failure were associated with a lack of essential features such as basement, third floor, size of rooms, etc.

The latest city developed by the government with ready-made government houses is Al-Nahda. Responsible staff in the design department indicated their disappointment with the changes they have observed homeowners making to their new houses. The ready-made houses were of new design and unlike the ones provided earlier. The design concept was the result of random surveys with citizens and based on the observed changes made to earlier projects by homeowners. According to the respondents, some of the changes completely changed the look of the house which no longer had much resemblance to the ready-made house provided by the PAHW. In other cases, the changes were so bad that it was not worth taking a second look.

The frustrations felt by the PAHW towards these respondents were sensed during the interview. They indicated that it is not worth spending time on providing new designs as citizens will make changes anyway. Moreover, it is the citizens’ money which is being spent making the changes, so why should the government be concerned about the changes? To this, the author argued that existing construction is being destroyed when homeowners make changes and additions. Therefore, the money that the government invested in providing good homes is being wasted in the removal and destruction of existing construction. It was commented further by the authors, that the money that is being invested here by the government could be used to build hospitals or other infrastructure benefitting the country.

The problem faced by the PAHW was highlighted by our research. From the foremost, the problem is to identify suitable citizens who are eligible for receiving homes. This should be followed by inviting them to take part in the design stage of the house. Instead of conducting random surveys, a personal dialogue with citizens would provide a better understanding of their needs and requirements in an ideal home. To ensure that there is a personal dialogue, after identifying 3,000–4,000 eligible citizens, the PAHW should divide them into smaller groups of 250–300 people and then involve them in the design and presentation phases. The presentation phase will involve displaying homes that have been re-designed after receiving feedback from citizens.

The PAHW commented that citizen participation could hardly be considered a solution when most citizens lack knowledge of construction. It was assured by the author that by involving the citizens during the design and presentation phases, the knowledge of citizens is bound to increase and the interest of
citizens in opting for government houses will also be raised as it was identified in the empirical findings that most of them did not want to build houses from scratch.

Another problem was with the process of allotting homes. Currently, the lot system is being used whereby citizens learn about the designs of homes and their location only a few hours before it is allotted to them by the PAHW. The recommended solution provided to the PAHW was to make houses to the same design in one section of the city and to use other designs in subsequent sections. This can be outlined during the presentation phase, whereby the citizens through their participation will come to know the type and location of their house.

6. Potential Improvements through Value Engineering

The use of Value Engineering in government and private construction projects has been successful in Saudi Arabia. One example is the development of the Bani Al-Najar district project in Al-Madeenah Al-Munawarah. The infrastructure projects reported by Al-Sayid (2008) provide evidence that VE helped to identify and eliminate unnecessary costs and to develop a “district” with lower costs and higher standards. However, VE has not yet been used in Kuwait. In agreement with Shublaq (2008), we believe that the failure to use VE in Kuwait may be due to the lack of a clear understanding of the importance of VE, the absence of incentives, and the lack of evidence of successful projects that used VE in Kuwait.

The evidence from Saudi Arabia is limited to infrastructure projects, whereas the research here relates to housing projects in Kuwait. There is a major difference in the involvement of customers between these two types of projects. In housing projects, there is no public involvement since the houses that are built and provided by the government in every project must meet the customers’ expectations. Therefore, government officials in the offices that are involved in the housing projects must interact with the customers to understand their needs and involve them in decision making to ensure that the houses meet their expectations. This is particularly important in Kuwait, because the total population is just over a million and because the country and most of its citizens are financially wealthy.

Readymade government homes have been provided to the citizens of Kuwait since 1954. Various studies and research projects have indicated that homeowners are often dissatisfied with the design and quality of the government-provided houses and that it is not uncommon for the homeowners to make changes in the houses immediately after they receive the houses from the government. The research focused on collecting information from citizens who opted for readymade government houses and those that opted for plots to build their own houses. The research indicated that even those who built their own homes encountered construction difficulties and that many of them were dissatisfied with the results. The government should capitalize on this factor and encourage end-users to opt for government-provided houses. This can only be accomplished if the government fully understands the design choices and requirements of end-users.

Therefore, the authors wish to emphasize the importance of having homeowners and government officials work together through the use of a Value Job Plan to overcome the problem of homeowner dissatisfaction with government-provided houses. Figure 1 indicates the areas where the involvement of homeowners is likely to be most beneficial.
Figure 1: VE Job Plan with homeowner participation

The task of having government officials interact with and involve citizens in making house design decisions is not simple or easy. This is especially true because many citizens have already lost their confidence in the government’s ability to provide houses that meet their expectations. One of the goals of our quantitative survey and qualitative interviews was to understand whether citizens are likely to be willing to participate with the government in ensuring that the houses meet their needs. Many of the respondents made it clear that they would even be willing to make financial contributions to ensure that their requirements are met during the government’s construction of the houses.

The first stage of involving the customers/citizens is during the pre-study activities. In keeping with VE requirements, the scope of the Job Plan scope and the objectives of the study must be developed using available project data and information. During this phase, the data and information to be used in designing the houses will be gathered based on interactions between PAHW and citizens. PAHW must show the existing designs for the houses to the citizens so that they can express their preferences concerning specific needs, such as basements, third floors, number of rooms, sizes of the rooms, exterior appearance, fittings to be used in the rooms, interior structure, and other requirements that would make the house match their requirements. During this stage, the PAHW must demonstrate convincingly that the design requirements proposed by the citizens have been considered seriously and that they will be incorporated in the final design. Once the PAHW is able to convince the majority of its customers, those who continue to be sceptical will be influenced to change their minds. Through this process, the PAHW will be able to gain the confidence of its customers and reduce the unnecessary expenses that citizens incur in improving their houses.

The PAHW should stress the participation of end-users strongly when using the VE Job Plan. This could occur in the pre-workshop activity phase and should begin with identifying appropriate end-users. Currently, there are around 83,000 people on the PAHW waiting list. Prior to involving the participation of end-users, PAHW must first identify people who will be receiving plots and those who will be
receiving readymade houses provided by the government. Although the results revealed that the first choice of most people was to choose their own plots, the long waiting period influence many to change to readymade houses provided by the government. Therefore, PAHW must inform citizens that their houses will be designed to meet their needs and preferences, and, in order to achieve this, PAHW must interact with the citizens who have been determined to be entitled to receive the houses.

Once the citizens are identified who wish to receive readymade houses from the government, PAHW should invite all of them to evaluate the designs of the houses that are proposed for the new city. These designs should be explained in detail, and citizens should be allowed sufficient time to study the designs and provide their comments. In a subsequent meeting between PAHW and end-users, suggestions should be collected and discussed. Based on the initial discussions, PAHW should evaluate the proposed changes in order to determine their feasibility in terms of construction and costs.

In this stage of end-user involvement, PAHW should display all available designs and options. End-users can select the ones that are best suited to their needs and indicate any additional changes they would like to see made in the designs. The requirements that fulfil end-user needs should be indicated to PAHW. Once feedback from all eligible citizens who wish to participate is received, PAHW should analyse the feedback and initiate the creation of new designs. The current survey that is being conducted by PAHW is a survey of the general public. The survey has been ongoing for many years, and citizens have not seen any significant improvements in the readymade houses provided by the government. In addition, the feedback provided by the survey may not be valid because the general public was surveyed rather than those determined to be eligible for government housing. Therefore, feedback from those who are qualified to receive the readymade houses provided by the government on a first-come, first-served basis should be followed by PAHW.

The second stage, the Workshop/Study (Value job plan) that occurs within the presentation phase, has six phases. According to VE standards, the presentation phase is one that involves project stakeholders or decision makers. This is the right time to ask end-users to return so they can evaluate and approve the new designs. A final decision should be reached between end-users and PAHW during this phase. Once a decision has been reached, end-users should sign an agreement with PAHW that states that the final design meets their needs and expectations.

Based on the recommendations of the PAHW-citizen interactions and citizen participation, as shown in Figure 1 of the VE Job Plan, the current situation of citizens’ dissatisfaction with readymade houses provided by the government can be improved. Situations will arise in which the cost of the project will be more than PAHW budgeted, and, during this stage, citizens/end-users can be encouraged to invest in the project, ensuring that they are part of the project. The projected investment would be much lower than the costs that are incurred currently by the occupants of readymade houses provided by the government. This is because the costs are not limited to how much the customers are investing in the modifications, but the costs also include the damage that is being caused by removing existing new fixtures and fittings. Therefore the government’s investment in the construction of the houses is being damaged by the end-users. In addition to this, most of the end-users lacked experience in the construction of a house, and they contracted for the services of private contractors who produced their own options in the changes. In brief, the costs incurred by the end-users in modifying the houses to meet their requirements were just as much
as the costs of constructing a new house. Thus, it can be concluded that, when PAHW assesses the costs for making the changes that the citizens request, they will be less than the costs that are incurred at present by the homeowners who choose to make changes to their readymade houses provided by the government.

The first and the foremost priority of PAHW should be to provide readymade houses that meet citizens’ expectations. The government houses are generally provided four to five years earlier than individual plots can be acquired. When a large percentage of citizens choose to accept government houses based on their participation with PAHW, the waiting list for individual plots will automatically be reduced.

7. Summary
The dialogue between citizens who occupy the government-provided houses and PAHW provides useful insights into the problems that currently exist and why some measures taken by PAHW to overcome these problems have proven to be unsuccessful. The current findings indicated that there was a failure to identify eligible citizens and collect data and information from them relative to their requirements and expectations. Current random surveys are not helpful to PAHW in providing relevant data to improve designs, and this research suggests that PAHW must identify eligible citizens and engage in constructive dialogue with them during the pre-workshop phases of a VE Job Plan. This may lead to greater levels of occupant satisfaction over the long term and, by implication, a more sustainable housing provision in Kuwait.

The right to own a house is part of every individual’s requirements, and the government should ensure that this right is met without undue delay. This is part of the government’s responsibility, and PAHW must take the initiative to build more units at a quicker pace and with improved occupant satisfaction. The government has announced plans for six model cities, which, it is hoped, will reduce the long waiting period that currently exists. Nevertheless, the government must take precautions that these cities and the government houses provided meet customers’ expectations.
Social Housing Provision: A Comparative study of Jordanian and Kuwaiti Policies

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ABSTRACT
The Kuwaiti Government has, for more than half a century, assumed responsibility (through the Public Authority of Housing Welfare (PAHW) for providing social housing to all citizens (with the proviso that the applicant(s) should be married). This policy is at variance with the vast majority of other countries, where government-housing strategy is focused on poor or low-income groups as well as those from disadvantaged communities. In order to ensure that a sustainable and ready supply of social housing is available, many authorities utilise pre-fabricated or system built designs. Also known as “readymade houses”, these are often constructed using the latest designs, which can offer a higher degree of quality and cost certainty.

This paper examines the policies and provision of social housing by the government of Kuwait and contrasts this with Jordan in order to understand and evaluate the performance, success and the degree of end-user / homeowner satisfaction. The study takes into consideration the difference in overall objective quality and standards in the provision of housing facilities between the Jordanian and Kuwaiti schemes.

The findings indicate that despite using high quality standards, specifications and fittings with spacious and flexible accommodation, the level of satisfaction within Kuwait end-user / homeowners is significantly less than that in Jordan. The difference between homes built in Jordan and Kuwait differ based on the income and the financial ability to build homes. In Jordan, government readymade houses are built for poor people and the low income people who cannot afford to build their own houses. Whereas in Kuwait, most of the citizens are financially well off and can build their own houses and therefore prefer plots compared to government houses. But as the government owns all the land and since the waiting time for plots are longer than government readymade houses, many opt for government houses. Due to this, Kuwaiti homeowners start to make many modifications to their houses immediately upon receiving them, incurring costs on themselves and the Kuwaiti government.

Keywords: Kuwait, Jordan, Readymade houses, satisfaction, PAHW
1 Introduction
Most large housing projects, whether the units are provided by a public or private body, are generally characterised by mass production of a typical finished unit to benefit the economy of scale (Fereig and Horn, 1990).

Most developed countries aim to provide a good standard of housing welfare for their populous, although the quality and availability can be regionally variable. In the United Kingdom, for example, a major policy that was implemented within the social housing agenda was Decent Homes 2010. This policy is designed to “raise the game” in quality social housing construction and refurbishment through using existing resources and retaining both ownership and management (within the local authority) or where additional finance was needed, through:

4. An arm’s length management organisation (ALMO),
5. Private Finance (i.e. PFI) to encourage extra private sector investment, or
6. Transfer of housing stock to a registered social landlord (RSL).

With the expectation that this would lead to:

- A step on the housing ladder for future generations.
- Quality and choice for those who rent.
- The provision of high quality, mixed, thriving and sustainable communities.
- Reduced homelessness and other acute housing problems.

2 Kuwait
Kuwait is characterised by a hot dry desert climate throughout the entire year, but more so during the summer (April to October) where temperatures can reach 51° C. The average temperature is 44° C, often with dust storms. The winter in Kuwait is short but warm. Temperatures in the winter fluctuate around 18° C, but sometimes this can be as low as zero. The autumn and spring are short seasons in Kuwait, and occasional rain falls only in the winter and varies in quantity from one year to the other (KW.GOV, 2008).

Kuwait is a geographically small country with per capita GDP of USD 39,300. The Kuwait economy is dependent on its oil production and exports. Its crude oil reserves are around 104 billion barrels which is 10 per cent of the world reserves. 95 per cent of export revenues come from petrol which constitutes for 80 per cent of government income. With the oil price and demand for oil increasing Kuwait has been enjoying 11 consecutive years of budget surplus (CIA, 2008b).

2.1 Kuwait Housing
The Kuwaiti government started building readymade houses for citizens from the middle of the last century (PAHW, 2006). The Kuwaiti Government has built more than 45,000 houses so far, the figures show that during the next 10 years the government plans to build around 80,000 readymade houses (PAHW, 2007). It has been understood from the empirical evidence that plots are the primary choice of Kuwaiti citizens and the next choice is the government readymade houses. Flats are not preferred and only one project has been ventured by the PAHW Kuwait. Plots refer to land where the citizen can build the house to their choice. Government houses are large and have around 7-8 bedrooms and have a ground and 1st floor. The rooms are large and are provided with the basic fittings using the best quality fixtures. Yet, a large portion of the citizens are not satisfied with these houses as some of the basic requirements are not fulfilled in these houses. Amongst these preferences, evidence suggests that flats are the least desirable. This is often because, as per Kuwaiti tradition, the citizens are used to large houses with many rooms rather than staying in a more constrained flat environment.
The Kuwait government ventured into the flats option only once after the housing project initiative began. This project was called the Al-Sawaber project and was located in the heart of Kuwait city. It included 33 eight-storey buildings with a total of 524 apartments. Each of the flats was 236 m² each and included a range of services. Being located in the city centre the residents faced problems with traffic congestion (Al-Khaiat, 1989) amongst other issues associated with residing in a metropolis. It was further added that multi-storey building did not suit the taste of people who are used to living in two-story villas, and only 300 eligible families opted to live in these apartments, those families who preferred to have apartments appear to have done so simply because of the significant delay of 8-11 years that is usually experienced in seeking a government house (Al-Khaiat, 1989). Nevertheless, the government is seeking new opportunities to resurrect the popularity of the flat option. Therefore the current preference is narrowed to plots and government readymade houses, of which the plots are usually the primary choice.

Al-Khaiat et al., (2005), has pointed out that the PAHW provides families that choose to receive PAHW-built houses with complete structures built by local contractors to standard PAHW designs. This system has both strengths and weaknesses. Using standard designs permits building a large number of units and upgrading with higher quality material at a competitive price. It also shortens the time needed to build housing units. On the other hand, some citizens prefer unique features in their houses, maybe for personal or family needs, or simply because of a desire to “look different” from their neighbours. In some cases, PAHW house occupants have substantially rebuilt their PAHW homes. This has been carried out on a large scale, and it represents both a waste of PAHW resources and an imposition of costs on the occupants of government housing.

This problem manifests itself clearly in the Kuwait housing projects in which the recipients remove or alter large sections of the units they receive, and redo the work to meet their own objectives and needs. (Mahdi et al, 2006).

The Public Authority for Housing Welfare has realised that there was a problem in house design. The reason was a significant number of citizens were unsatisfied with the design, and consequently, they initiated major changes to the interior and external elevations directly after possession. In addition to the three basic selections of plots, government readymade houses and flats, the PAHW has ventured into providing a new choice to overcome citizen dissatisfaction. This is the black concrete framework. In this option the outer structure of the house is constructed by the PAHW and the interior constructions such as living rooms, bedrooms rooms, etc. But even with this option and attempt from PAHW towards achieving citizen satisfaction on government readymade houses, the success rate is minimal and therefore the project of black concrete framework is not widely used and not in demand with the citizens. Table 1.1 provides data of current and new house designs. The following data and figures have taken from (Al-Saeed, 2007). Figure 1.1 shows what a standards Kuwaiti government readymade houses looks like.

<table>
<thead>
<tr>
<th>Features</th>
<th>Current Design</th>
<th>New Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Rooms</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Room Average Area</td>
<td>18 m²</td>
<td>20.5 m²</td>
</tr>
<tr>
<td>Number of Bathroom</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>'Diwaniyah' Area</td>
<td>24.5 m²</td>
<td>30.2 m²</td>
</tr>
<tr>
<td>Kitchen Area</td>
<td>30.2 m²</td>
<td>28.5 m²</td>
</tr>
<tr>
<td>Basement</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

(Source: Al-Saeed, 2007)
Table 1.1 and figure 1.1 show the size and immediate features of the house. From the exterior shown in figure 1.1, the design is also much more impressive than the houses provided in Jordan (figure 1.4).

According to the graph (figure 1.2), with around 92 per cent the highest changes have been from removing of partial addition of external walls, followed by 83 per cent who build annexure / added external walls. These were followed by electrical work changes (61 per cent) and replacing of entrance doors (45 per cent).

Figure 1.2: Changes to government readymade houses based on 1996 and 1998 field survey
(Source: Al-Khaiat et al., 2005)

Figure 1.3 provides an overview of the changes that have been done to the houses immediately upon receiving them. Data has been collected from field survey of one of FahadAlahmad city, which is one of the newest cities where the residents received the houses and the changes have been recent. This data can be compared to data collected by Al-Khaiat et al., (2005) from two field surveys carried out in 1996 and 1998.
Data collected by Alazemi (2010) indicates that according to 96.6 per cent (rather the majority of the people), their opinions on design were not taken into consideration by the PAHW prior to constructing the houses. Citizens made different kinds of modifications to the government readymade houses immediately upon receiving them as indicated by an overall 62.1 per cent of respondents. Some of the common types of modifications are shown in figure 1.3. To those who did not carry out modifications were limited to their income which included 50.0 per cent of the respondents. It was also understood from 63.9 per cent of the respondents that changes were carried out by external contractors. And 91.7 per cent did not take PAHW authorization prior to making the changes. The changes that were incurred was around the amount of KWD 10,000 to KWD 20,000 which is US$ 35,000 to US$ 70,000. These are large amount incurred by the citizens themselves. This is in addition to the amount of the house that the citizens have to pay the government. It has also to be noted that the government uses the best quality construction materials and fixtures to construct the readymade houses. Therefore, the money that government invests into these houses is wasted by removing them. Expenses incurred are therefore both from the government and citizens.

From a field survey conducted by Al-Khaiat et al. (2005) and Alazemi (2010), changes such as partial additions to external walls, building annexure, electrical works, replacing entrance doors, aluminium works, removing internal walls and plumbing works can be observed to be common changes being carried out upon immediately receiving the houses. This is an indication that such changes are being carried out since many years. The government is taking various measures to overcome end-user dissatisfaction. One such initiative is upcoming six new modern cities - JaberAlahmed, Sa'adAlabdellah, Sabah Al-Ahmed, Khiran, the Modern, Al Mita'a and Subbyia City. These cities are provided with basic necessities such as schools, mosques, shopping malls, healthcare centres, police stations, petrol stations and hospitals and will have houses with the latest designs.
3 Jordan
Jordan is a small Arab country with insufficient supplies of water, oil, and other natural resources, and with GDP-per capita 4,900 USD (CIA.gov, 2008a), whereas Kuwait is a small and rich, country with GDP-per capita 39,300 USD (CIA.gov, 2008b).

In 1973, the housing bank has been constituted to finance the building erection and building businesses within a certain privileges through introducing housing loans for the desired categories with lesser rate of interest than the commercial banks (HUDC, 2007).

3.1 Jordanian Housing
The Jordanian Government offers a similar style of “readymade house” to that in Kuwait, but these are reserved solely for families classed as “deprived”. The government constituted the housing establishment in 1966, and endeavoured to build apartments and convenient housing units to solve a housing crisis in the Jordanian cities and suburbs. This started to establish nomadic settlement projects and the government special project on occupational housing (HUDC, 2007).

The government has also carried out construction in urban segments in the 1980’s under the urbanite development project with the aim of improving the “low and random” quarters and providing the social services in Amman city; its work field then extending to Al-Zarqaa, Al-Aqaba and Arbid (HUDC, 2007). The Ministry of Public Works and Housing, through its Housing and Urban Development Corporation (HUDC), is the governmental body that is responsible for housing affairs and aims to support low-income groups and individuals through 2 key mechanisms. One such mechanisms building small housing units for very poor families, the other through supporting the interest of housing loans for low-income government employees. Table 1.2 provides an overview of the Jordanian housing.

<table>
<thead>
<tr>
<th>Number of Houses</th>
<th>1,221,055</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of occupied Houses</td>
<td>940,147</td>
</tr>
<tr>
<td>Ratio of houses connected to water network</td>
<td>92%</td>
</tr>
<tr>
<td>Ratio of houses connected to Electricity network</td>
<td>99%</td>
</tr>
<tr>
<td>Ratio of houses connected to sewage system network</td>
<td>57%</td>
</tr>
<tr>
<td>Average area of houses (m2)</td>
<td>100</td>
</tr>
<tr>
<td>Average area per capita per house / (m2)</td>
<td>20</td>
</tr>
<tr>
<td>Average yearly need of housing units</td>
<td>29,860</td>
</tr>
<tr>
<td>Number of housing bank loans</td>
<td>4,342</td>
</tr>
</tbody>
</table>

(Source: HUDC, 2007)
The housing projects carried out in Jordan are for the poor and low income people who cannot afford to build their own houses. It is also called as the pioneering projects for the poorest families. The pioneering projects come as a direct result for pursuing the Jordanian government through its plan of fighting the poor. The HUDC handled the works of carrying out the project different elements through the way of the direct execution and using the local labours from the area residents to provide the work opportunities for them and carried out two project one of them in Al-Zarqaa governorate and the other in Al-Aqabaa (HUDC, 2007).

4 Overview of Kuwait and Jordan

Both the countries have their respective government agencies to provide the housing facilities. In Kuwait, the Public Authority for Housing Welfare (PAHW) is the government department which is responsible for building housing for those who worth it; each married person is entitled to go back to that association and choose the kind of house he prefers (PAHW, 2006). In Jordan, the Ministry of Public Works and Housing, through its Housing and Urban Development Corporation (HUDC) is the governmental body that is responsible for housing affairs (HUDC, 2007).

The difference between both these countries with regards to housing provided by the government is that in Kuwait housing needs are for all its citizens, whereas in Jordan it is provided to the poor who cannot afford their own houses nor have difficulty building their own. Another prominent difference is the size of the houses between both these countries.

<table>
<thead>
<tr>
<th></th>
<th>Kuwait</th>
<th>Jordan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of population</td>
<td>1,000,000</td>
<td>5,473,000</td>
</tr>
<tr>
<td>Population Growth Rate</td>
<td>3.0%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Area</td>
<td>17 Km²</td>
<td>89,342 Km²</td>
</tr>
<tr>
<td>Per-capita GDP</td>
<td>$39,300</td>
<td>$4,900</td>
</tr>
</tbody>
</table>

(Source: CIA, 2008a and CIA, 2008b)

Kuwait houses have 8 bedrooms which is 18m², whereas the total size of Jordanian houses is only 70m². Further differences are that Jordanian families need to get the houses from their own efforts. Employees in the government and the private sector usually bear a long term banking loan to get a house. HUDC supports the interest of housing loans for the low income government employees only and construction of small housing units for the very poor families (HUDC, 2007). Whereas, Kuwait is a richer country with smaller population (around 1 million) and the government takes responsibility of providing houses to the young families, irrespective of any the income group discrimination. Any condition that may apply is applicable to all citizens. In addition to this the applicants have the freedom to choose between plots, readymade houses and flats. On the other hand Jordanian houses are based on the income group. The government only provides readymade houses or housing loans to poor people or low income groups who have difficulty in constructing their own houses.

5 Satisfaction

Housing satisfaction refers to the degree of contentment experienced by an individual or family with regard to the current housing situation (McCray and Day, 1977). In Jordan, families tend to express a high degree of satisfaction with a typical 70 m² house, whereas the houses that are provided in Kuwait tend not to be less than 400m², yet residents appear to implement significant changes immediately upon occupation. The satisfaction level therefore does not pertain to the size of the house alone, rather to the features of the houses that changes based on the income level. As Jordanian government readymade housing units are for the poor and low income groups, a house of 70m² is satisfactory because occupants are afforded the basic needs of shelter. These people tend to live in severe poverty prior to receiving
government houses; some of them are homeless, others live in shelters. So there tends not to be any significant problems concerning the occupant’s satisfaction with readymade house.

On the other hand, the residents of Kuwait tend to present with higher income levels and therefore the requirements for houses tend to be higher. When demand for houses grows, the provider (the government) should take measures to understand the end-user needs through effective Value Management procedures. Without understanding end-user expectation, satisfaction cannot be expected to be achieved.

6 Conclusion
This paper discussed the reasons for large Kuwaiti houses not fulfilling the house owner’s expectations and satisfaction. The problem is persisting since many years and even with new designs being introduced over the years, the problem of dissatisfied customers still exits and almost everyone makes changes to the house immediately upon receiving them.

The Kuwaiti government undertook massive housing projects to provide houses for first time buyers and young families. These six modern cities that have been discussed above would contain 125,000 units, with average of 12,500 houses being built every year. This would only solve the problem related to long waiting period of residents to get houses. The current waiting period varies between 10-15 years.

The attempt from the Kuwaiti government in improving the housing situation can be observed as positive, but if the needs of citizens towards housing are not studied, then the end-users will be dissatisfied and modification to houses and incurring expenses from home owners and wasting of government costs by removing and modifying existing construction will keep happening.

In order to overcome the existing problems of homeowner dissatisfaction of readymade houses, it is proposed to identify and involve the citizens in the design of the houses from the outset. The Kuwaiti Government should first seek to implement a system whereby identified occupants have a tangible role in the initial design of the properties, along the principles of value management. By implementing such a system, it is possible that future, costly changes may be avoided and this occupant satisfaction increased.

The current venture of the PAHW in Kuwait in providing government readymade houses are with good interest but it is not meeting the citizen expectations and satisfactions. The PAHW has few standard designs of readymade houses that have been used since many years which have seen few modifications through the years. The citizen dissatisfaction does not lie with the basic design of the house but with features and the construction. From empirical evidence it was understood that features such as basement, third floor and more number of bedrooms were some of the basic requirements of the government readymade houses. If the Kuwait government wants to stop modifications and reduce costs incurred both by the PAHW and the citizens, it has to understand the citizens specific needs and provide readymade houses that meet citizens expectations and satisfaction.