

## **Comparison of House Characteristics and Facilities In Libya and Indonesia**

Mohamed Amar A dagdag<sup>1</sup>, Yulvi Zaika<sup>2</sup>, Alwafi Pujiraharjo<sup>3</sup>

<sup>1</sup>Structure and Construction Management, Master Program of Civil Engineering, University of Brawijaya,  
Malang, Indonesia,  
Libyan

<sup>2,3</sup>Department of Civil Engineering, University of Brawijaya, Malang, Indonesia  
Indonesian

---

**Abstract:** *In most of our urban centers, the problem of housing is not only restricted to quantity but to the poor quality of available housing units. In Libya, the government failed to achieve the targets of housing demand in the country. On the hand, the condition of houses in Indonesia is partly similar as research shows. Currently, the house price in Indonesia is significantly increased. This paper was intended to compare the characteristics of Libyan houses and Indonesian houses, the problems and government efforts on copying the problems related to the housing in Libya and Indonesia. Therefore, the study was conducted in quantitative approach with as many as 121 Indonesian home owners and 109 Libyan home owners as the data sources who were asked to respond the questionnaires and interview to obtain their responses as the data. Photographs of real house condition in both countries were also used to describe the finding. The finding shows that materials of Indonesian houses are tile roof, bricks for walling and stone and concrete as the foundation, while the Libyan houses use concrete roof, brick walls, and concrete stone foundation. The facilities such as electricity, clean water, sewage and drainage system for the houses in both countries are in good condition. However, the drainage and sewage system in Libya are not really well maintained because the precipitation level is low. The labor in Libya is expensive as it is from other countries. However, in Indonesia the labor is in a standard price. Both country' governments have activated some regulations and strengthening the rule for violence of house construction. The rules cover the facility regulation and punishment for breakers. They have been well implemented.*

**Keywords:** *Libyan house, Indonesia house, government effort, house characteristics*

---

### **I. Introduction**

The majority of governments play an important role in developing the housing sector. However, there are a lot of obstacles which curb government capabilities in eliminating the housing problem themselves [1,2]. Historically, housing unit is treated as product hence the need for quality if it is to pair well and perform desirably in the market, but quality in construction industry suffers significant difficulty as it passes through extreme pressure driven by cost minimization rather than value maximization. In Libya, the government failed to achieve the targets of housing demand in the country [3]. Libya has a very big covered land and accordingly the requirement of the people is to develop big and better facility in the houses as well as in the housing society. In Libya, public housing constitutes but a fraction of the urban housing stock and contributes generally less than 1 per cent of the new construction produced each year [4, 5]. Many loans are waived without clear consistency to achieve political goals [6].

On the hand, the house price in Indonesia is significantly increased triggered by the rising prices of building materials. According to Rahmawati [7], limited supply in small-plotted homes has also driven up the price in that segment. The average growth rate for urban households was estimated at 3.5 to 3.75 percent in 2001 given an average household size of 4 persons. In traditional settlements and informal areas a much larger proportion of owner households still had no title or certificate to the land. The main problems related to the quality of the housing stock are lack of services and infrastructure, which cause regular flooding in most neighborhoods.

### **II. Literature Review**

#### **2.1 Design of House**

The provision of a wide variety of housing solutions is necessary to facilitate choice, as well as consumer desirability. Planning standards are necessary to develop safe, disaster resistant and quality housing, especially to core need households who are particularly vulnerable to the effects of natural hazards[8]

## **2.2 Material**

Building materials have to be managed well in order to meet the demand on the right time and in the needed place. Punctuality and appropriate amount are very important as they affect the building schedule and finalizing process. The material quality should be suitable with the requirement of project specification. The materials chosen should be the cheapest ones which have high quality. The delivery should meet the material using and the suppliers are chosen based on the previous partnership experiences [8].

## **2.3 Labor**

Construction laborers and helpers perform many basic tasks that require physical labor on construction sites. Construction laborers and helpers typically do the following: clean and prepare construction sites by removing debris and possible hazards, load or unload building materials to be used in construction, build or take apart bracing, scaffolding, and temporary structures, dig trenches, backfill holes, or compact earth to prepare for construction, operate or tend equipment and machines used in construction, help craft workers with their duties, and follow construction plans and instructions from supervisors or more experienced workers [9].

## **2.4 Facility of the House**

The characteristics of housing units; housing services and infrastructure, neighborhood facilities and socio-economic environment are the key components of housing considered. Particularly, emphasis is on the extent to which housing provided have met the needs of the residents in terms of the adequacy of spaces, comfort, security, hygiene, and aesthetics, and provided opportunities for social and economic benefits, access to basic amenities and proximity to public services and infrastructure.

## **2.5 Cost Estimation**

In managing the construction finance, there must be a cash flow describing the amount of money spent and how much is added. Housing must remain affordable in order to meet the satisfaction of all households, particularly those with a “core need”. This is especially important since land and house prices, rent and construction costs have risen more rapidly than real incomes, thus reducing the housing options of low-income households. In addition, households’ access to financing is a critical component of housing affordability, particularly in view of the eligibility criteria of many lending agencies [8].

## **2.6 Housing Delivery**

The successful resolution to housing delivery situation will require a comprehensive approach, which mobilizes and harnesses the combined efforts of the private and public sectors as well as civil society. Housing must remain affordable in order to meet the satisfaction of all households. On the other hand, housing delivery strategies relate to activities, events, processes or functions employed in the transformation of housing policies, program objectives and theories, human and material resources (inputs) into housing units and services (outputs). In addition to examining the interactions among the participants in public housing, assessment of their capacity in public housing delivery is also crucial.

## **2.7 Land Policies**

Land policies deal with spatial policies which involve the spatial arrangements between and within settlements. Spatial policies are designed to address efficiency and equity issues arising from these spatial arrangements and effects [10]. In addition, zoning restricts land use into permissible types to ensure proximate land uses are compatible and the urban area as shaped by uncoordinated decisions of firms and households is guided by a comprehensive master land use plan [10]. Land adjustment or urban land consolidation is a private initiative among landowners to readjust or redraw the boundaries of their landholdings for redevelopment as a unified estate. Construction laborers and helpers perform many basic tasks that require physical labor on construction sites and follow construction plans and instructions from supervisors or more experienced workers [11].

## **III. Research Method**

### **3.1 Research Design**

This study was primarily based on the principles of quantitative research. Strauss and Corbin [12] refer to quantitative research as any kind of research that produces findings which are meaningful, testable and scientifically free from contradictions. This type of research focuses on understanding rather than predicting or controlling phenomena. It was aimed to reveal the opinion of people in Indonesia and Libya about the condition of housing in their countries. The finding included the percentages of people opinion of housing conditions gained from surveys and fact-finding enquiries of different kinds [13].

### 3.2 Data and Data Source

The sample is home owners both in Indonesia and in Libya who were chosen as many as 121 Indonesian home owners and 109 Libyan home owners. The home owners were limited to those who lived in East Java for Indonesians and those living in North Libya for Libyans. The data of this study involved the housing condition and the housing problems in Libya and in Indonesia based on the people responses given by home owners about the public housing in the two countries which were obtained from the questionnaire and interview.

### 3.3 Data Collection and Analysis

To collect the data, the first step done by the researcher was observation. The condition of houses in Indonesian was observed and some pictures showing the real condition were taken to be analyzed. Moreover, the questionnaires were distributed to the samples of Indonesian home owners and Libyan home owners. Besides, there were interviews to 3 Indonesian housing developers and 3 Libyan housing developers to dig information related to the housing construction: characteristics of houses, problems related to housing facilities and government policies. To analyze the collected data, the researcher used Microsoft Excel percentage counting program to find out the differences and similarities of the responses of the questionnaires by Libyans and Indonesians to discover the patterns that were then generated in the tables and figures. The pictures of the observation were used to add the description. Moreover, the interview result added the details in the description which could not be found from the questionnaire answers.

## IV. Findings And Discussions

Of the 300 questionnaires distributed to each 150 Indonesians and 150 Libyans, the returned questionnaires were only 121 from Indonesians and 109 from Libyans. The respondents came from different cities in Indonesia and in Libya which are mostly located in East Java and in North Libya. The majority of the Indonesian respondents hailed from Malang, Surabaya, and Blitar while the majority Libyan respondents lived in Alkhoms, Tripoli, and Sirte.

### 4.1 Types of Houses in Libya and Indonesia

Table 1 House Types in Libya and Indonesia

Country	Single-family house	Multi-family house	Apartment	Total
Indonesia	79	31	11	121
Libya	76	25	8	109

Based on the Table 1, more than 65% of Indonesians and Libyans live in single-family houses. Moreover, about 30% of both country residents live in multi-family house. In addition, 9% of Indonesians and 2% of Libyans are found to live in an apartment.

### 4.2 Design and Construction of Houses in Libya and Indonesia

Based on the results of the questionnaires and observations about both Indonesian and Libyan houses, it is revealed that the structural of the houses in Libya and Indonesia has some similarities and differences. Based on the Figure 1, most of the houses in Indonesia only have one floor with a yard in front of the house. In addition, the majority of houses in Indonesia is one-storey level with three to four rooms. One room is usually bigger than the others because it is used for the parents or the owner while the other rooms are used for the children, guest, and the maid. The width of the house is as small as 30 or 32 m<sup>2</sup> and as large as 120 m<sup>2</sup>. The houses are usually close one another where there is no a single meter separated the houses. This description can be seen in the Figure 1. On the other hand, as seen in the figure 2, most of the Libyan houses are two-storey building some of which do not have yard in front of the house. The houses in Libya are cubic shape with flat roof. Because of the high temperature, every house is utilized with air conditionaire. In addition, the majority of houses in Libya is two or three-storey level with five rooms. The width of the house is as small as 100-110 m<sup>2</sup> and as large as 200-250 m<sup>2</sup>. The houses are usually far one another with 3 meters space on every of the four sides of the houses. The land is covered with a square wall with the house in the middle. This description can be seen in Figure 2

### 4.3 Materials for Houses in Libya and Indonesia

The characteristics of houses in Indonesia are partly different from those in Libya. Initially, the majority of Indonesian houses are using tile for the roof although there are few number of houses still use tin for roofing. This is especially in some villages and those which were built near the river. Obviously, thatch is not used for the roof in Indonesian houses. Furthermore, the majority of Indonesian house walls are made of brick although some are built from concrete. Only small minority of houses in Indonesia have wood wall. This material is especially found in the houses built in the forest, such as in Kalimantan and Sumatera. Some houses in Papua

are still applying wood for the walling. Although the responses do not reveal the use of thatch for roofing, it is believed that some tribes in Indonesia build their houses from wood for the wall and thatch for the roof, furthermore, the foundation is from planks. Moreover, most houses in Indonesia have been built on the stone and concrete foundation..

However, the characteristics of houses in Libya are different from those in Indonesia. By contrast, Libyan houses use concrete to cover the above part of the house. Only small number of houses mentioned uses tile. However, few people use materials such as fiber for those who do not have a proper house living in the village. Obviously, thatch is not used for the roof in Indonesian houses. Furthermore, the majority of Libyan house walls are made of brick and concrete due to the condition of extreme weather, reaching .0°C to over 40°C. Moreover, most houses in Libya have been built on the stone and concrete foundation.



Figure 1 Houses in Malang and Surabaya, Indonesia      Figure 2 Houses in Tripoli and Alkhoms, Libya

#### 4.4 Builder and Funding of Houses

Based on the results of the questionnaires given to both groups and observations and interviews on the sites, Libyans and Indonesians, it is shown that housing planner and builder in both countries are different. However, the price of the houses in both countries is more or less similar.

In Indonesia, the houses are planned by the home owners, however, some of them are by architects. The majority of houses are managed and built by private developers. Only small minority are built by the government or company/institution where the people work. The prices of the house are between 100 million to 1 billion rupiah. In contrast, the Libyan houses are planned by architects. The majority of houses are managed and built by private developers. Only small minority are built by the government or company/institution where the people work. The prices of the house are between 100 million to 1 billion rupiahs. The results are seen in the Figure 3, 4, and 5 as follows.

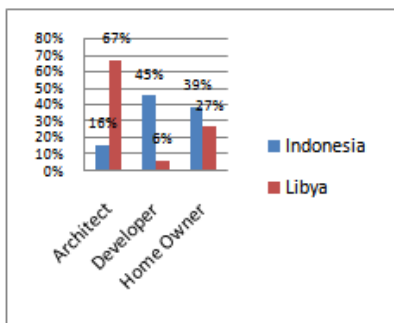


Figure 3 Designer House in Libya and Indonesia

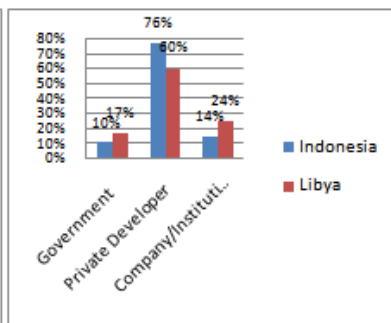


Figure 4 Home Builder in Libya and Indonesia

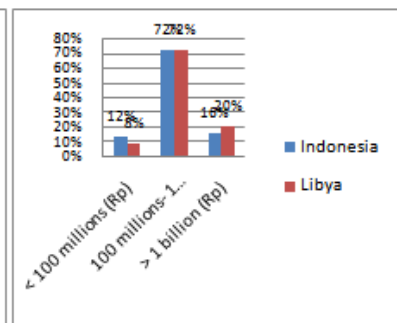


Figure 5 House Price in Libya and Indonesia

#### 4.5 Housing Facility Condition in Libya and Indonesia

The housing condition in Indonesia and Libya has some differences and similarities. The results of the questionnaires have revealed that some conditions of the houses in Indonesia are similar to those in Libya.

However, due to geographical location some facility conditions are not quite the same. The description of both country house conditions is illustrated in the following Figures.

##### 4.5.1 Water in Libyan and Indonesian Houses

Indonesian houses have been equipped with clean water and electricity supply which are provided by the government through PDAM (government institution to distribute clean water). The water provided is clean, healthy, odorless and always available although some say that there some places which during certain season are lack of clean water supply. Similarly, Libyan houses also have used clean water and electricity supply which are provided by the government. Libyan government together with Company General Electricity and Water has provided the two facilities for houses in Libya. The clean water is supplied from the Great Man Made River built to provide clean water for every Libyan home. The water provided is clean, healthy, odorless and always available because it is maintained by the government to fulfil people need of clean water.

##### 4.5.2 Electricity in Libyan and Indonesian Houses

Moreover, the electricity voltage is between 900Watt-1300Watt. The electricity safety reaches 80%. Most places have used electricity, except in some isolated areas like in the forest in Kalimantan. The electricity towers have been found in any place with wide coverage and usually are palced in non-rwsidential areas as seen in Figure 6 (a), (b), and (c). Indonesian houses have been equipped electricity supply which are provided by the government through PLN (government institution for providing power supply). Similarly, the electricity found in Libyan houses are almost similar to those in Indoneisan houses. The electricity voltage is between 900Watt-1300Watt. The electricity safety reaches 80%. Most places have used electricity, except nowadays there are some places which are black out due to war condition. Although the electricity controls are placed near residential areas, they are put in the big boxes of steel locked from laymen. The electricity is transferred to houses using cables with a pilar on every 30 meters similar to those in Indonesia. This is described in the Figure 6 (c), (e), and (f).

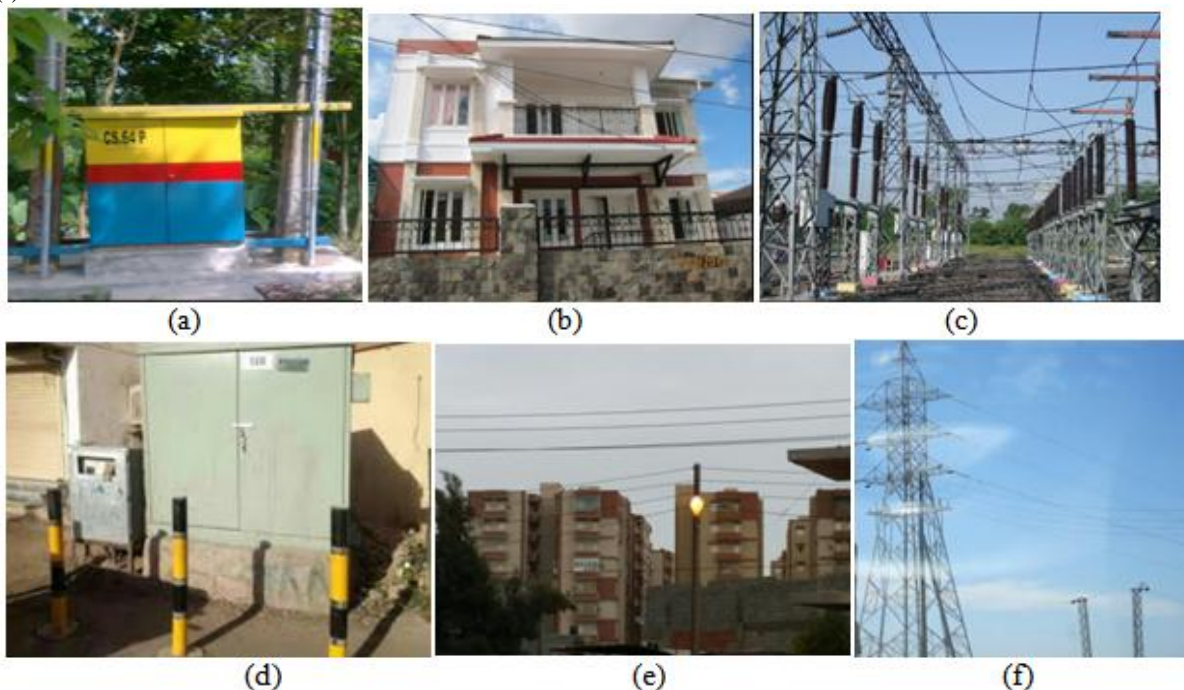


Figure 6 (a) Electricity Control, (b) Electricity Cable, and (c) Electricity Tower in Indonesia and (d) Electricity Control, (e) Electricity Cable, and (f) Electricity Tower in Libya

##### 4.5.3 Road and Light Street Facilities in Indonesian and Libyan Road

In Indonesia, the road system is managed and maintained by the government collaborating with local society. Most roads in Indonesia have been covered with asphalt, both in the cities and in the villages. The roads in open space of ricefield are also in asphalt and equipped with street lamps every 20-30 meters. Those facilities are in good conditions in most places. However, the majority of roads in Indonesia are narrow with capacity for 3 cars in width. Obviously, in some areas the roads are as wide as for 2 cars only. This can be seen in Figure 7

(a). On the other hand, in Libya the road system is built and maintained by the government. The typical Libyan roads are wide with the capacity to load 5 cars in width. The roads are equipped with street lamp every 20-30 meters. Those facilities are in good conditions in most places. However, only roads in the cities have been covered with asphalt. The roads in desert areas or in the villages are not using asphalt yet. Moreover, road systems and maintenance have been managed by coloboration of government, Ministry of Transportation and Company General Roads and Bridges. This can be seen in Figure 7 (b).



**Figure 7 (a) Road in Malang, Indonesia and (b) Road in Alkhoms, Libya**

#### **4.6 Government Current Efforts in Providing Houses for People**

In both countries, government has provided some bank loans for every individual to access for an appropriate house. The government, moreover, has made some regulations and applied them to control the standard of houses that should be lived in. Until recently, the regulations have benefited both society and housing companies. Furthermore, sanctions have been activated to punish and give penalty for those who disobey the regulations and disadvantage people. However, the implementation of the sanction is not really well applied. It is only usually applied for certain cases.

In addition, government has conducted some inspection on the facilities completing houses. Maintenances of facilities such as drainage and sewage have been done twice in a year in Indonesia. Nevertheless, it is still less done in Libya where the sewage and drainage systems are only maintained every two years. Based on the results of an interview with a Libyan, it is revealed that the sewage is narrow which usually only pipes to flow the water from the house to septic tank which is still located near the house. Periodically, there is always trucks to take the water from this septic tank to be transferred and thrown in the desert. As the septic tank is huge enough, the pumping may be done every six months or every year.

Besides, the government in both countries has provided good facilities like trash bins and built gardens in every public area to maintain the condition of good environment for humans to live. The water and electricity are managed and supplied by the government to assure the fair spread of the power and clean water availability for every citizen.

### **V. Conclusion**

1. The characteristics of houses in Indonesia are partly different from those in Libya. However, the majority of Indonesian houses are using tile for the roof while Libyan houses use concrete. The condition of facilities in both countries is good. The houses in Indonesia are planned by the home owners, while Libyans use architects. The prices of the house are between 100 million to 1 billion rupiah.

2. There are no significant different efforts done by the government. In both countries, government has provided some bank loans for every individual to access for an appropriate house. The government, moreover, has made some regulations and applied them to control the standard of houses that should be lived in. Until recently, the regulations have benefited both society and housing companies. Furthermore, sanctions have been activated to punish and give penalty for those who disobey the regulations and disadvantage people. However, the implementation of the sanction is not really well applied.

3. Generally, there are some common problems found in Indonesia, such as lack of clean water in some areas, lack of open space, rubbish management problem, leaking and cracking wall or roof, drainage problem, unstable electricity, flooding, over duration of construction, lack of maintenance and safety problem. Similarly, there are some similar problem occurring in Libya such as rising prices of construction materials, no regularity of housing construction, lack of hazardous material awareness, lack of building distribution for the needy, high price of land, and costly building labors.

4. To tackle these problems, there some solutions should be taken in account by the government and local society. The government should take an action on the existence of slums which create problems, stricthen the requirement for standardized house, activate clear rules and agreement with developers, do some inspections and punishment, check the housing design and construction to promote liveable houses, maintain the facilities regularly.

## **VI. Recommendation**

For the authority, the government and society should cooperate to promote better liveable houses. The government should maximize the implementation of regulations and sanctions to create better condition. People have to be aware of the environment when using the facilities. There should be more requirements for firms to build houses. The government should control the land and construction material prices.

For future research, it is suggested to focus more on analyzing the current and historical problems of houses in Libya and Indonesia or in other countries. Furthermore, the future research can study the government roles in providing better facilities for housing in both countries for deeper understanding and better quality of life.

## **References**

- [1]. Olayiwola, L. M. 2005. Public housing delivery in Nigeria: Problems and challenges. A paper presented at the 'World congress on housing transforming housing environments through the design', 27–30 September, Pretoria, South Africa.
- [2]. Daramola, S. A. 2004. Private Public participation in Housing delivery in Nigeria, paper presented at a business luncheon organised the Royal Institute of Surveyors (RIS) in Chinese restaurant, Palmgroove, Lagos. 15, April, 2004.
- [3]. Sheibani, G. and Havard, T. 2005. The Government Role in Housing in Libya During the Period 1970 – 2000. In: Khosrowshahi, F (Ed.), 21st Annual ARCOM Conference, 7-9 September 2005, SOAS, University of London. Association of Researchers in Construction Management, Vol. 2, 697-707.
- [4]. Okpala, D, C. 1992. Housing Production System and Technologies in Developing Countries: A review of the experiences and Possible Trend/ reports. HABITAT INTL. Vol 16. No. 3 pp. 9-32
- [5]. Wakely, P. 1988. The Development of housing Through The Withdrawal from Construction: Changes in Third World Housing Policies and Programmes, Habitat International . 12 ( 3), pp. 121-131
- [6]. CAHF. 2014. Libya. (Online), (<http://www.housingfinanceafrica.org/country/libya/>, retrieved on June 10, 2014)
- [7]. Rahmawati. 2013. Indonesian Developers Switching to Middle-Income Housing. (Online), (<http://www.thejakartaglobe.com/business/indonesian-developers-switching-to-middle-income-housing/>, June 10, 2014)
- [8]. Tan, Willie. 2002. The Housing Market. Jurong: Prentice Hall.
- [9]. United States Department of Labors. 2014. What Construction Laborers and Helpers Do. (Online), (<http://www.bls.gov/ooh/construction-and-extraction/construction-laborers-and-helpers.htm#tab-2>, retrieved on 7 September 2014)
- [10]. Tan, Willie. 2002. The Housing Market. Jurong: Prentice Hall.
- [11]. United States Department of Labors. 2014. What Construction Laborers and Helpers Do.(Online), (<http://www.bls.gov/ooh/construction-and-extraction/construction-laborers-and-helpers.htm#tab-2>, retrieved on 7 September 2014).
- [12]. Strauss, A. L. And Corbin, J. 1990. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Sage.
- [13]. Kothari, C.R. 2004. Research Methodology: Methods & Techniques. New Delhi: New Age International (P) Ltd.