JEDDAH FRESH MARKET

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Abstract
The intention of this project is to design a health coverage and clear environment for selling and buying fruits and vegetables were people can feel comfortable. The project will feature a Fresh Market where visitors can buy souvenirs along with other traditional products. It will also host a various range of activities, a small vegetable garden were children can cultivate, showrooms for introducing agriculture throughout history and showing the agriculture types, old farming pictures and old agriculture tool etc. In addition, it will provide a cooking space for families to enjoy their times as well as interacting with other people. Several related case studies were conducted for better idea of the project. The main zones considered in this project are fruit and vegetable market, potato and onion market, interactive, services, amenities and administrations. Then selected site is located at the east highway, Al-Haramen Street, Jeddah, based on the evaluation criteria of accessibility, surrounding, views, demographic pattern, location, sustainability and utilities. This project seeks to promote Jeddah Fresh Market as the best suitable choice of “fruits and vegetables” market for markets selling and agriculture in Jeddah, and be the first choice for farmers and businessmen in the Kingdom of Saudi Arabia, Gulf countries and the Arab world.

Keywords -- Fresh Market, Selling and Buying, Agriculture, Fruits and Vegetables

INTRODUCTION
Serious agricultural development began in the 1970s. The Saudi government has launched an extensive plan to promote the development of modern agricultural technologies, including establish rural roads, irrigation networks, and storage and export facilities. The Saudi government also encourages agricultural research and training institutions [1, 2]. As an outcome, the output of all basic food products has increased dramatically. Saudi Arabia can now be fully self-sufficient and provide many foods including meat, milk, and eggs. Water is the key to Saudi Arabia’s agricultural development. The Saudi government has successfully implemented a multi-faceted plan to provide the necessary massive water supply for the huge growth of the agricultural sector [3]. Facilities for handling urban and industrial runoff for agricultural irrigation have also been established.

Jeddah is a rich city in history, and part of that history is that which involves the agriculture and agriculture profession [4]. Long ago people of Jeddah sanctioned these professions for many reasons starting with the fact that it was a source of living and ending with it being a favoured hobby. Though agriculture is highly important in the culture of Saudi Arabia it seems to us today that it is somehow neglected through several reasons [5, 6]. Therefore developing a project that rises with this activity is a must have in Jeddah in order to re-strengthen the relationship between people and the agriculture.

CASE STUDIES
There are three case studies related to supermarket and fresh markets from China, Greece and France are chosen for understand the requirement of the project. The chosen case studies are:

a. Sanya Lake Park Super Market, Sanya, Hainan Province, China
b. Supermarket in Athens, Greece
c. Market Hall in Marly-Le-Roi, France

Sanya Lake Park Super Market, Sanya, Hainan Province, China
The Sanya Lake Park supermarket designed by NL Architects is located in a large resort in Sanya, the southernmost city in China (Figure 1). This site is famous for its tropical climate and is a popular tourist destination. Landscaping is a key factor for success, and the project connects large parks (such as corridors) to an important part of the master plan. The client intends to create several pavilions with service and commercial functions in the park to activate the landscape. The idea is to place the building below the main shopping area. The supermarket can attract customers directly from the large underground parking lot below the residential building. In addition, transportation and logistics can now disappear underground. In order to mark the entrance of the underground area, a pavilion containing retail and cafes was proposed. At every corner, the roof bends into a lively “Estate” entrance [7].

Supermarket in Athens, Greece
Supermarket in Athens is designed by KLab architecture (Figure 2). Thanopoulos supermarket is located in the northern suburbs of Athens. This is a family business with two other supermarkets in the same area. It is always a high-end supermarket brand with a variety of high-end imported goods, which is unlikely to be found in other supermarkets in Athens [8].

The main idea is to change the concept of the supermarket that now exists in Greece, namely the indifferent products of large boxes and long alleys. After renovation, the supermarket area is 2600 square meters, divided into two floors, the same as the previous three floors. The second floor is still empty, and future cafe of the supermarket customers can use it. Due to the reorganization of two inclined moving walkways and shelves, the circulation has changed. The plan has undergone tremendous changes, and everything has been arranged according to consumer habits and consumer needs. Almost every department has its own identity, and KLab designs custom furniture for it. Most of the exterior walls were opened to allow natural light to enter the store, especially on the first floor, thereby creating...
openness in the outdoor market. The ceiling is not high enough to accommodate the false ceiling, so the idea of using vertical white translucent Perspex lines to create a simple structure was proposed, and T5 fluorescent lamps were used to illuminate between them. This allows the gradient luminous ceiling with osb as the background.[8]

Market Hall in Marly-Le-Roi, France
Market Hall in Marly-Le-Roi is designed by Ameller Dubois & Associés (Figure 3). The hall is the symbol of the meeting place and the environmentally friendly urban design plan unanimously approved by the Marly-Le-Roi Municipal Council. It includes the construction of a semi-underground market hall and an outdoor parking lot, as well as a housing project. The shape of the hall is very simple, strictly square. The slight movement of the roof allows the introduction of a north-facing zenith lamp. No pillars in the hall, giving the building complete flexibility in design and evolution [9].

The lower side of the hall is covered with wooden siding to ensure a pleasant acoustic effect. Vegetation covers the roof well. It also improves thermal comfort and promotes rainwater management. The outer wall is equipped with wooden shadows, which can be placed horizontally or vertically according to the direction. The external stalls in the front yard are arranged around the plaza hall. The continuous circulation of the stairs around the stall leads to the parking lot below. The side road controlled by the telescopic bollard is easy to transport to the store. The fully planted side slopes to the east constitute the land reserve for upcoming accommodation units. The place is located between the front yard and the park, facing the entrance of the hall; a small wooden building gathered under the roof of the greeter's office, and more rooms and cautiously used toilets [9].

After having the studies case analysis, the importance functions areas are the main hall of selling and buying zone, services and underground parking of the visitor. To achieve the success in a market it should contain the hyper market hall as a selling and buying zone (vegetable and fruit sector services), main storage, loading subsistence area, circulation and parking area.

The site criteria that needed to considered are availability of clear access from the main road, site capacity to hold enough parking spaces, surrounded by different type of district’s facilities, such as commercial and shop, must not be surrounded by residential area due to high noise level of the project. In addition, the site criteria also need to include the availability of future expansion. The site has a good infrastructure which will help the project utilized them such as water and electricity, also add economic value to the region.

SPACE PROGRAM
Figure 4 demonstrates the functional diagram of the project. There are six primary zones in this project namely fruit and vegetable market, potato and onion market, interactive, services, amenities and administrations. The characteristic of each zone is outlined in Figure 4. Table 1 and Table 2 tabulate the space program of each zone and overall program assumption respectively.

![Figure 1. Sanya Lake Park Super Market, Sanya, Hainan Province, China [7]](image1)

![Figure 2. Supermarket in Athens, Greece [8]](image2)

![Figure 3. Market Hall in Marly-Le-Roi, France [9]](image3)

| Zones                     | GFA (m²) | No. of floor | Footprint (m²) | Net area (m²) | Percentage (%) |
|---------------------------|----------|--------------|----------------|---------------|----------------|
| Fruit & vegetable market  | 1965     | 4            | 6551           | 1572          | 61             |
| Potato & onion market     | 1781     | 1            | 1781           | 1425          | 6              |
| Interactive               | 5550     | 1            | 5550           | 4440          | 17             |
| Services                  | 1500     | 1            | 1500           | 1200          | 5              |
| Amenities                 | 2194     | 1            | 2194           | 1755          | 7              |
| Administrations           | 1235     | 2            | 617.5          | 987.3         | 4              |

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SITE SELECTION AND ANALYSIS

It is very important to select an appropriate location for the site to function successfully as well as to add value to the location it inhabits. Figure 5 shows that the proposed site 1 is located at East Highway Road. The site area is 119,000 sqm. Figure 6 shows that the proposed site 2 is located in North Jeddah. It faces Jarir Mall at Prince Sultan Road. The site area is 95,000 sqm.

Figure 5. Site 1 [10]

Table 3. Site Evaluation

| Site Criteria     | Weightage (%) | Site 1 | Site 2 |
|-------------------|---------------|-------|-------|
| Accessibility     | 25            | 20    | 15    |
| Surrounding       | 15            | 13    | 5     |
| Views             | 5             | 1     | 4     |
| Demographic pattern | 5             | 4     | 5     |
| Location          | 25            | 25    | 8     |
| Sustainability    | 10            | 10    | 10    |
| Utilities         | 15            | 12    | 5     |
| **Total**         | **100**       | **85** | **52** |

Based on the site evaluation result shown in Table 3, site 1 is chosen due to the higher percentage 85%. This site is located in the east highway of the highway Road Al-Haramen Street, Jeddah, Saudi Arabia, also intersecting with Al-Manar and Al-Ajawad Street. It also can access through Saleh bin Ibrahim Road and...
Wahib bin Omar Street. This site is close enough from the current site of fruit and vegetable central market which is the opposite side. It's over looking to the main highway Road. It's surrounded by many of commercial shops, residential buildings and different company of cooling refrigerators for fruits and vegetables such as Al-Shurbhati Company, Bin Zager and Royal Company of fruits and vegetable.

Figure 7 shows the climate analysis of the selected site, the temperature in summer is considered very hot, the temperature in the afternoon breaks through +40°C, and the temperature in the evening drops to +30°C. Jeddah is relatively humid, with average daily relative humidity varying between 55% and 70% throughout the year. Relative humidity is lowest during late spring and early summer. The location of the mountains to the east of Jeddah and the general wind pattern over the Arabic peninsula, therefore the predominant winds move parallel to the coast. During May to September the region is subject to a seasonal effect knows as ‘Aziab’. This phenomenon is a strong, hot and dry wind that moves from the south-west bringing large quantities of dust and dust storms to the Jeddah region.

Figure 8 shows the site surrounding analysis. The site is surrounded by different type of facilities such as companies of constriction, mini markets, agriculture shops, shopping mall, gym, gas station, restaurants, mosque, clinic, residential and many others.

**ZONING AND PROJECT DESIGN**

This project design a healthy covered space to create a clear environment for selling and buying fruits and vegetables were people can feel comfortable and enjoying while visiting this project. Create social and interactive space that is related to the market concept to encourage the idea of agriculture in Jeddah economically and socially. Figure 9 shows the relation between all functional zones, where the fruit and vegetable market located at the center of the project and surrounded by potato and onion market, interactive zone and services zone. The amenities zone and administrations are situated at the corner of the building near to the highway. The master plan of the project is shown in Figure 10. Figure 11, Figure 12 and Figure 13 show the interior view of the market hall, Piazza and Arial day shot of the project respectively.
CONCLUSION
This project can be considered as a new product for the community that can bring a new approach for Jeddah Fresh Market of fruit and vegetable in the society. It is a complex where the whole sellers and clients can go enjoy buying and get their goodies. The space programs that covered are fruit and vegetable market, potato and onion market, interactive, services, amenities and administrations. The site evaluation is based on the criteria of accessibility, surrounding, views, demographic pattern, location, sustainability and utilities. Then selected site is located at the east highway, Al-Haramen Street, Jeddah, Saudi Arabia. This project provides the social and interaction space based the concept of fresh market and encourages the agriculture economy in Jeddah, Saudi Arabia.

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