SOMALIA SEAPORT

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Abstract

Land-based facilities designated to receive maritime personnel or supplies are used as authorized entry and exit ports to enter and leave the country. Choosing the location of the port can optimize the amount of land and navigable water, meet commercial needs and avoid wind and waves. Ports in deeper waters are rare, but can handle larger and more economical ships. Traditionally, ports can handle all kinds of traffic; support and storage facilities vary widely, may stretch for miles, and dominate the local economy. Some seaports play an important military role. The space program of the proposed project consists of administration, exhibition hall, parking area, hotel, common facilities, motel, arrival terminal, and departure terminal. The site evaluated criteria of accessibility, size area, climate, surrounding development and site visual is used to select the most appropriate project location. The project improves the city through sustainable development to achieve organized urbanism.

Keywords – Seaport, Local Economy, Economical Ships, Sustainable Development, Terminal

INTRODUCTION

There are four primary functions of ports and harbours that are management, development, industry and commerce. The administration ensures that the legal, social, political and economic interests of national and international maritime authorities are protected. The second is development; the port is the main promoter and promoter of the economy of a country or the entire region. In terms of industry, the main industry processes goods imported and exported in ports. In addition, as far as commercial ports are concerned, it is an international trade junction points in which various trade methods are interchangeable, the port also covered for cargo handling and transshipment [1].

Usually, ports are facilities for receiving ships and transhipment cargo [2]. They are usually located on the edge of the ocean, sea, river or lake. Ports often have cargo loading and unloading equipment, such as cranes and forklifts operated by shore workers, for loading or unloading ships. This equipment can be provided by private interests or public agencies [3, 4]. Usually, a cannery or other processing facility will be located nearby. When entering and leaving the port, the port pilots and tugs usually operate large ships in narrow areas. Customs facilities are set up in ports engaged in international transportation.

Somalia is a country located in the Horn of Africa. It borders Ethiopia in the west, Djibouti in the northwest, the Gulf of Aden in the north, the Indian Ocean in the east, and Kenya in the southwest. Somalia has a land area of 637,540 square kilometers and is mainly composed of plateaus, plains and plateaus. Its coastline is 3,025 kilometers long and is the longest coastline on the African continent and the Middle East [5, 6].

Seaports around the world are a key part of the modern global trade infrastructure because of the large geographical differences between them, so they may have many differences in the way they handle traffic and goods [7, 8]. One of the keys to safe navigation and use of seaports is to provide accurate and up-to-date port data, which can be in the form of port guides, port plans and port directories. The port database will contain everything from approach information to cargo type. Therefore, this project proposes the development of Somalia seaport.

CASE STUDIES

There are four unique and attractive port terminals, from several countries are used as the case studies. The outstanding design concepts an project philosophy have significantly beneficial this project and the selected case studies are:

a) Northland Cruise Terminal: Cruise Passenger Landing, Northland, New Zealand
b) Kaohsiung Marine Gateway Terminal, Taiwan
c) Kaohsiung Port Terminal, Taiwan
d) International Cruise Terminal, London

Northland Cruise Terminal: Cruise Passenger Landing, Northland, New Zealand

Cruise ship passenger portal into the original wild adventure. The facility includes 8 mooring / breasting dolphins and a floating midstream system. The berth is connected to the pier through a 150-foot two-part boarding system, which is indexed according to the tidal range to accommodate a 10% slope. This 4,000-square-foot terminal can accommodate immigration activities of Canadian Customs and Immigration. The wharf can accommodate vessels up to 300 meters long with a draft of 15 meters. The 45-meter floating platform can transfer passengers from the ship to a 70-meter ramp under constant tide adjustment. The terminal provides customs and immigration services (Figure 1) [9, 10].

North Country Pier is located in the heart of Prince Rupert’s waterfront, within easy walking distance of museums and the historic downtown shopping district. The available tours range from kayaking and helicopter tours to exploring the local community and enjoying the natural scenery. There are many options for ecotourism to satisfy every interest [11].

Kaohsiung Marine Gateway Terminal, Taiwan

Kaohsiung Marine Gateway Terminal is shown in Figure 2. The Kaohsiung Harbour Bureau, the Ministry of Transportation and Communications are the sponsors for this competition which was held in 2010 [12]. This project was designed by Asymptote Architecture which was established from a partnership of Lise Anne Couture and Hani Rashid. The terminal is situated between the hub of the city and the port, and this contemporary statue-
like building integrates the designed passenger experience and engineered coastal activity [13].

Kaohsiung Port Terminal, Taiwan
The Kaohsiung Port Terminal uses the unique horizontal position of the site relative to the urban grid to propose a dynamic 3-dimensional urbanism (Figure 3).

Existing public pedestrian flows along the proposed elevated boardwalk can be expanded without having to be disturbed by establishing continuous elevated public coastal roads along the river. At the same time, the cruise and ferry functions are located directly below public places and maintain a clear position to provide a safe area for departure / arrival passengers [14].

The hall is divided into three different areas, each area is related to the route of the boat tour, and the direction of the hall is parallel to the waterfront to maximize the contact surface between the water and the land. By vertically dividing the functions of the public, port companies and passengers in coastal areas can maintain the efficiency of various operational purposes while allowing multiple functions to work together.

Vertical circulation is carried out around thickened areas of the building skin, which are also used for house structure, utilities and ventilation. The structure is a system consisting of a nested large-span shell that consists of a steel tube space frame underneath, which is sandwiched by cladding plates to create usable cavity space. Overall, the experience of directed but functionally separated flows will bring aura of energy to the point terminal space [14].

International Cruise Terminal, London
The project explores temporary themes and how the building operates as a public civil building in the local community and a cruise ship terminal dedicated to passengers. The use of non-orthogonal geometry attempts to challenge traditional infrastructure building types, which are often associated with prefabricated large open shed structures that follow modern unified space concepts (Figure 4) [15].

The geometric shape of the building connects the river with the city. The cut-outs on the building structure can provide guidance vision and guide cruise ship passengers and citizens directly into the dock. This glazed strip connects both the elements of the cruise terminal, public (citizen) and private (terminal).

Although the two elements are defined as different buildings through their materiality they overlap and connect to one another. The glazed strip which flows through the two buildings visually connects them but also helps to orientate the user to the lido or up on to the roof cape [15].

Table 1. Space program of the project

<table>
<thead>
<tr>
<th>Zone</th>
<th>Use (%)</th>
<th>GFA (m²)</th>
<th>Net Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>4</td>
<td>1225</td>
<td>1225</td>
</tr>
<tr>
<td>Exhibition Hall</td>
<td>5</td>
<td>3350</td>
<td>2400</td>
</tr>
<tr>
<td>Parking Area</td>
<td>5</td>
<td>3430</td>
<td>1225</td>
</tr>
<tr>
<td>Hotel</td>
<td>30</td>
<td>12450</td>
<td>11200</td>
</tr>
<tr>
<td>Common</td>
<td>25</td>
<td>11955</td>
<td>10780</td>
</tr>
<tr>
<td>Facilities</td>
<td>4</td>
<td>4560</td>
<td>2450</td>
</tr>
<tr>
<td>Motel</td>
<td>15</td>
<td>4900</td>
<td>4900</td>
</tr>
<tr>
<td>Arrival Terminal</td>
<td>12</td>
<td>3675</td>
<td>3575</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>45545</td>
<td>37755</td>
</tr>
</tbody>
</table>

SPACE PROGRAM
This project considers several main zones namely administration, exhibition hall, parking area, hotel, common facilities, motel, arrival terminal, and departure terminal. The space program of the project is tabulated and shown in Table 1. The gross floor area is about 45545m². The net are and site area of the project are 37755m² and 45500 m² respectively.
The passenger building space guidelines that considered are accessibility, facility entry, customer information, passenger waiting areas, passenger conveniences, terminal electrical room, and elevator machine room.

The site should be easily accessible and suitable for people with disabilities, and existing facilities should be modified to make it accessible. The facility entrance should provide passengers with easy access to the terminal.

In addition, facility entrances should be found to facilitate access from streets, parking lots, loading and unloading areas, and other modes of transportation. Customer information is an important part of ferry terminal design, especially in terminals with leisure routes. The design should consider the development of pedestrian-only facilities to accommodate all types of pedestrians, including children, adults and the elderly.

The passenger waiting area refers to the area where passengers stand and stand inside and outside the terminal when they are not actively purchasing air tickets or retail items or walking through the terminal. The passenger waiting area should be as close to the ferry as possible to allow boarding passengers to get on as soon as possible.

The passenger waiting area can accommodate pedestrians and passengers who enter the terminal after temporarily stopping the vehicle in the waiting area. The size of the passenger waiting area for these customers is based on three parameters, namely pedestrian service level, design event method and route type. This section provides plan-level methods to determine the size of passenger waiting areas. In the detailed design, other factors were also taken into account, such as the direction of travel, luggage / backpack and accessibility.

As far as luggage / backpacks are concerned, the design considers providing additional space for passengers' luggage, especially in places of entertainment or inter-city rail connections. At the same time, in terms of accessibility, it provides more space for wheelchair passengers and people with reduced mobility. In addition, the design should also consider other potential users of the terminal waiting area space, such as users of bus stations without indoor seats nearby.

Place passenger amenities in areas that will not disrupt passenger circulation and prevent passengers from waiting, so that they can be used during peak hours. The preferred location for passenger convenience is in the passenger waiting area. Therefore, for convenience, an area of 50 to 100 square feet is assumed.

The restricted access room of the terminal equipment room is used to accommodate large high-voltage main circuit breaker control equipment and disconnect terminal operation components. The project should provide sufficient space to accommodate multiple large electrical enclosures, metering and alarm systems.

If applicable, the project should consider providing a space for the elevator machine room to accommodate the hydraulic, mechanical, and electrical components used to operate the elevator system. In addition, please use a concrete structure specifically designed for containment.

SITE SELECTION AND ANALYSIS

Figure 5 demonstrates the proposed site is located in Somalia eastern north Berbera District, close to naval base. The site area is about (320 x220) = 70400m². Figure 6 show the site accessibility analysis. The selected site can be accessed through Berbera port road and Monument Main Street.

In order to create sustainability and comfortable design, the design should consider where to locate the outdoor areas as well as benefits from the north breeze. Also shaded areas should be considered and water features to cool the weather in compliance with Somali climate condition. The strengths of the selected site are the availability of empty areas around the site for future development or extra parking, and the site is surrounded by water from three sides. The challenges of the site are the site surrounding with non-residential area, the site dose not has very well utilities, and the visual and environmental pollution of the cargo port terminal.

ZONING AND PROJECT DESIGN

Figure 7 and Figure 8 demonstrate the site zoning and master plan of the project respectively. The administration and common facilities is located at the middle of the site. The parking zone is next to the motel and hotel zone. The exhibition hall is located next to the arrival terminal which serves the convenience to the visitors. Figure 9 and Figure 10 show the landscape between the building and the view of parking area with hotel and motel respectively. The main perspective view of the project is shown in Figure 11.
CONCLUSION
A port is a location on a coast or shore containing one or more harbours where ships can dock and transfer people or cargo to or from land. This project revives the city with an organized urbanism through the concept of environmental friendly and sustainable development. The new proposed space program of the project consists of administration, exhibition hall, parking area, hotel, common facilities, motel, arrival terminal, and departure terminal. The selected site location is evaluated from the criteria of accessibility, size area, climate, surrounding development and site visual. This project provides the opportunity to seaport of Somali to become a landmark to attract tourist and improve the economy of the site.

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