CHAPTER 1

INTRODUCTION

1.1   Background

Indonesia is known as an archipelago country, because there are more than 17 thousand islands . Among the several islands there are straits such as the Sunda strait, Malacca strait, Bali strait and many more. The Sunda strait is the strait between the Indonesian islands of Java and Sumatera. It connects the java sea to the indian ocean. The name comes from the indonesian term Pasundan, meaning "West Java". At narrowest point, the width of the Sunda strait is only about 25 Km.[1] The Sunda strait is also an important shipping lane, because it is one of the main routes from the China Sea to the Indian Ocean.

To cross the strait there are two types of transportation that are now being used, namely air transportation and sea transportation. Air transportation uses airplanes while sea transportation uses medium-sized ships or can be called ferries. On these two transportation not only used for passengers, but also used for goods.

With increasing eonomic growth on the island of Java and the island of Sumatera, the number of passengers and goods that crossing Sunda strait is also increase . The increasing number of passengers and goods, are too large compare to the capacity of available Airplanes and Ferries , have caused buses and trucks stack up in the port, especially during bad weather or during holiday season. Those condition causes the que time become longer, ferry and flight costs becomes expensive . To overcome those problem or it could be one of the transportation option for crossing , in Sunda Strait the bridge need to be built.

In this Final Asignment, will be designed Sunda Strait Bridge. The type of bridge which will be designed was suspension bridge. This type was chosen because the long distance of Sunda Strait. The total length of bridge crossing Sunda Strait will be 28,5 km devide into four parts as shown in Figure 1.1. Start from East direction as the first part is about 3,8 km connecting Anyer in West Java to Ular island the bridge construction will be truss girder bridge. The second part is about 11km connecting Ular island and Sangiang island the construction will be designed suspension bridge. Similar to the second part, the third part have 10 km length connecting Sangiang island and Prajurit island the constuction will also suspension bridge. The construction of the end part, 3,7 km length connecting Prajurit island to Lampung will also using truss girder bridge.

Figure 1.1 Plan of Sunda Strait Bridge

1.2   Problem Statement

Considering the large scale of the bridge construction, this Final Assignment devided into three groups of Final Assignment. The first groups will design and calculating of upperstructure including pylon and anchor block of suspension bridge, second group will design and calculating of upperstructure including truss girder and third group will design and calculating substructure and as well as foundation of the bridge.

1.3   Objectives of the Final Asignment

From the above backgroundand problem statement, the objectives of this final asignment can be mentioned as follows:

1. Upper Structure :
    a. To design and calculate Sunda Strait Bridge Consist of Truss Girder Bridge

1.4   Scope of the Study

To accomplish those objectives, this study started with a literature review of the information pertaining to design and calculation of Truss Girder Bridge. Some books, journal, papers pertaining of Truss Girder Bridge design and calculation will be reviewed. Literature review and then will be followed by methodology. In the chapter of methodology, dimension of truss girder . Design and calculation of upperstructure will be given in chapter four, while the result will be given and discuss in chapter five.