

Future Prospects of Artificial Islands Futuristic Urbanism

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Abstract:- Due to rise in sea level and rapid growth in population, it is expected that there will be an area shortage in the coastal areas in upcoming years. Many countries had solved their land shortage issues by either reclaiming lands or creating new islands. Changing scenarios and needs have shaped the today's requirement of the creating of artificial islands. If we take a look at the practices in historic times, early artificial islands included factors of security and culture as main factors (such as the Tenochtitlan, Mexico and Nan Madol). Later comes era of sea trades in which the construction of harbors to provide an isolated site for sea trade route [Dejima]. In 17th century, islands were built for defense purpose in Portugal and Spain. In modern times, Shortage of area for particularly development or growing needs of the country to provide new areas for habitat or recreational activities have increase the pace of developing new islands via Land Reclamation. More recently, they have been built to reduce urban areas congestion, promote tourism and accommodate airports. Also, there are proposals been made to build new islands to reduce the severity of coastal erosion or generate electric power from renewable energy sources. Such projects could bring new opportunities and activities to an area which had lesser scope for further development or area shortage which is likely to be seen in future. The effects on environment of design of such a project may give rise to many other problems. It is necessary to examine its aspects. This paper will be about how the objectives of the making of new islands or land reclamation had changed from past to the modern times, pros and cons and also, how it will be in the future when there will expected to have new issues or objectives to create the new land.

1. INTRODUCTION

Today we live in the world where the population growth [1.1% per year] 1 and global warming are two major issues which causes two other issues that is shortage of new areas and sea level rising [at a rate of 3.2 [2.8 to 3.6] mm per year] 2 due to which the density becomes high in the areas and leaving less space for further development or new development in the areas. Such a level of rising, directly effects affect low lying areas, such as islands and river deltas, worldwide, on serious scale despite looking small. The areas that are expected to be more heavily affected are islands and coastal zones. The Rise in sea levels will lead to several other issues to the local populations like economic instability, natural disasters and further population displacement. The higher amount of resources for civil protection, the unavoidable loss of land areas to the sea and possibility of conflicts with other states are other major problems. Presently preservation and land reclamation has been seen as the solution to the land loss of coastal zones. Despite their high

cost (Japan's cost of preservation works in the Okinotorishima islets is evaluated to be at 29.3 billion yen so far and the expected cost of major preservation projects in small states like the Maldives is expected to be far beyond their capacity³) and their positive potency, as well as their short term status, these methods seem to be the way that may provide a solution to the land loss or land shortage. These changes have led to the demand of new interventions or adjustments which may provide new opportunities to the development. For tackling the problem related to gradual sinking of lands, especially in case of Small Island and Low-lying states, various techniques, including the applying of Artificial Islands and Structures (A.I.S.), are proposed or already in practice. Adversely, environmental and safety concerns have been much more thoroughly elaborated on national and regional level, but only for investigation and utilization platforms. The formatter will need to create these components, incorporating the applicable criteria that follow.

2. EARLIER TIMES

In earlier times when there were no issues like rise in the sea level or population of the cities, the formation of artificial islands had been in practice. There are several examples from the different parts of the world. The intent of construction of these islands vary from countries to countries. For example, from the Aztec times, an island named Tenochtitlan was constructed in present Mexico, Artificial Island founded on piles of canes covered by dirt and held in place by stakes. 250,000 people were living in the city of Tenochtitlan, the Aztec predecessor of Mexico City surrounded by many small artificial chinamitl islands was built on a small natural island in Lake Texcoco. The main purpose of making of that island was the security and religious purpose of the Aztecs as guided by their priest for location. Another example of the historical artificial islands is Uros Island, Peru which are Supported by layers of floating reed anchored with ropes and sticks driven to bottom of lake. The Uro Indians are still living on the artificial islands nowadays. A floating islands life is usually between 15-18 years. Artificial islands have been used since the seventeenth century for coastal defence, economy and as increasing of the land areas. During Seventeenth century, artificial islands had been seen as a base of coastal defense [Spain, Portugal], trade and economy as well as extension of their land base. Japan had constructed artificial islands for making new harbors to increase the trade capacity of the country.

These islands which were made in the earlier times serve any special purposes like cultural, religious purpose like Tenochtitlan and uros to economic purpose like we had seen in Japan and Portugal which created new islands with the purpose of harboring to create new opportunities to make trade routes.

3. MODERN TIMES

In modern times the construction of the islands comes with the purpose of creating new landmass or tackling the issues which comes due to increase in population, land shortage or rise in sea level. Earlier in modern times, the land reclamation had been seen as a solution for these issues. For example, the country Netherlands had the largest area of the reclaimed lands. The shortage of land had led to the taking of new measures by the government to found new lands for farming and residential purposes. Reclamation of Flevopolder was finished in 1969. Total land surface area of 970 sqkm and is largest artificial Island in the world. In South and South East Asian seas, the use of artificial islands and structures is a popular method for land preservation and reclamation. There, the small size of island states makes spatial necessities that are hard to fulfill in an unexpected way. Recovery ventures of Artificial Islands in light of smaller islands is the standard case particularly for real development works, for example, airplane terminals or harbors. Examples of such practices are in Hong Kong, Singapore and the Maldives. The Hong Kong International Airport lies on a simulated island made on two littler islands (which made up 25% of the surface territory of the airplane terminal's stage). In Singapore, in light of various little islands of under 10sqkm, Jurong Island (recovered land territory of 32sqkm) was framed to home real petrochemical establishments and a power plant. At long last in Maldives, by the capital of Male, the nearby government made on the Kaafu Atoll the manufactured island of Hulhurmale, to cover future needs on terms of lodging, modern and business advancement⁸. The island additionally has the Male air terminal, and as opposed to the characteristic island of Male (which remains at most extreme tallness at 1m above ocean level) remains at 2m above ocean level, so as to face a possible ocean level ascent.

Sea colonization is practice of lasting human settlement of seas. Such settlements might be sea steads skimming on the surface of the water, or exist as submerged living spaces secured to the sea floor, or in a middle of the road position. One basic role of sea colonization is the development of decent region. Other conceivable advantages incorporate extended access to undersea assets, novel types of administration and recreational exercises.

Quickly creating utilization of Artificial islands in the course of the most recent decades, is the utilization of it as human living spaces. If we look back in the 50's, when seaward Artificial islands utilized as radio stations initially showed up in the North Sea and further created amid the 1970's with the presence of celebrated private possessed "states, for example, Sealand,

Minerva or Atlantis, the residence of the seas on Artificial islands now begins to discover more worthy and, in this way, down to earth applications. Later, new islands were built to provide habitat, for example the fake island of Hulhurmale

which was intended to house the expanding population of the Maldives capital of Male and was purposefully worked at 2m above ocean level¹⁰. The comparable routine of building Artificial islands on Persian Gulf to host visitor establishments (The World, The Palm Islands, the Burj al-Arab in Dubai and the Lulu Island in Abu Dhabi are the most renowned¹¹) likewise must be noted, particularly considering the size of the built establishments. It's actual that their present utilize is to encourage travelers however these are tests of AIS utilized as human natural surroundings. In India, Mumbai was 7 islands, which was recovered to build the range of the city because of increment in populace at quick rate and lack of space for further improvement.

4. CASE STUDY 1:

The Palm Islands are a manufactured archipelago in Dubai, United Arab Emirates on which real business and private frameworks are built. The islands are:

- (1) The Palm Jumeirah,
- (2) The Palm Jebel Ali and
- (3) The Palm Deira.

Orchestrated domain of 50 km² was Constructed by rainboring process with sand burrowed from Persian Gulf surrounded by far reaching shake sea wall. The Risk of liquefaction discarded in the midst of advancement by vibro-compaction. Dubai is one of the richest places in world with oil industry as major source of income. It is believed that the oil in Dubai will be finish by 2016, thrashing its economy to ground. Making of Dubai into a luxurious holiday resort to attract tourists to increase country's economy had been seen as a solution. Dubai have sunny days throughout the year and around 5million tourists visit Dubai annually, but the Sheikh wanted to more than 15 million but the Coastline of Dubai is 72kms which is not enough for 15million tourist. So, there was a need to improves the cost-line of Dubai. The Shiekh Muhammad planned to start make an Artificial palm tree shaped island that is expected to expand the coastline by 56kms. It had helped in increasing the tourism for the country which increased the economy. The structure of the island is free from concrete construction which is ecofriendly. It (is expected) solved the problem of land for the construction near sea shore. The construction was done by sand and stones, mainly so its construction effects on the environment will be lesser. The construction can provide extra land for the construction of habitat and recreational facilities and it improves an aesthetic look to the sea line of the country.

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