Preliminary Study on Land Reclamation Alternatives at the Pacific Entrance to the Panama Canal

Estudio Preliminar de las Alternativas de Reclamación de Tierras en la Entrada del Pacífico del Canal de Panamá

JETRO

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Conclusiones y Recomendaciones
(No existe Resumen Ejecutivo)

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

JETRO Preliminary Study on "Land Reclamation Alternatives at the Pacific Entrance to the Panama Canal" was carried out in cooperation with Autoridad del Canal de Panama (ACP) from December 2002 to March 2003. With a view to the beneficial usage of excavated materials coming from Panama Canal Expansion Plan activities, offshore land reclamation alternative (artificial island) and onshore reclamation alternative (peninsula) are proposed in consideration of technical and environmental aspects.

Artificial Island Construction Alternative:

Category	Item	Particular
Artificial Island	Size of Artificial Island	1,400m*1,050m = 147 ha
	Ground Level	M.L.W.S. + 7.00 m
	Volume of Reclamation Soil	28 million m3
Quaywall	Water Depth: Quaywall side Revetment side	M.L.W.S. - 16.75 m M.L.W.S. - 12.00 m
	Type of Structure	Prefabricated steel sheet pile cellular-bulkhead quaywall
	Construction Period	18 months
Land Reclamation	Material Transportation Method	By Barge
	Land Reclamation Method	By Reclaimer
Construction Cost	Quaywall Construction	$ 212 M.
	Land Reclamation	$ 50 M.
	Total	$ 262 M.

[Remarks]
Advantages of adopting prefabricated steel sheet pile cellular-bulkhead quaywall:
(1) Seawater pollution is minimized during land reclamation because the reclamation area is isolated from external seawater by cellular-bulkhead quaywall.
(2) Construction period is short.
(3) Quaywall can be used for container berth.

Peninsula Reclamation Alternative:

Category	Item	Particular
Peninsula	Size of Peninsula Reclamation	690 ha
	Ground Level	M.L.W.S. + 7.00 m
	Volume of Reclamation Soil	54 million m3
Quaywall	Water Depth	Less than M.L.W.S. -4.00 m
	Type of Structure	Double sheet pile wall
	Construction Period	26 months
Land Reclamation	Material Transportation Method	By Barge
	Land Reclamation Method	By Reclaimer and Bulldozer
Construction Cost	Revetment Construction	$ 70 M.
	Land Reclamation	$ 135 M.
	Total	$ 205 M.

Environmental Aspect:

In Chapter 4, environmental aspects are reviewed and recommended, and also an environmental monitoring measure executed in Japan is introduced. In addition, tidal current simulations are implemented.

Recommendations for Further Feasibility Study

In this preliminary study, due to time and data constraints, some bold assumptions have to be adopted to propose offshore/onshore land reclamation alternatives.

In the possible future feasibility study on land reclamation alternatives, following items must be studied for the implementation of this land reclamation project.

1. Review of ocean graphic studies
2. Review of seismic profiles results.
3. Selection of artificial island location.
4. Boring exploration on the sites.
5. Detail design of marine structures, including causeway and breakwater.

6. Detail materials transportation and handling analyses.
7. Detail construction planning.
8. Detail cost estimation.
9. Environmental study, including environmental monitoring plan.