

Some Issues of Coastal Land Reclamation in Penang

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Coastal land reclamation issues in Penang

- 12th December 2011, Penang Local Government Consultative forum, chaired by YB Chow Kon Yeow held forum on coastal land reclamation in Penang.
- 3 key government agencies presented their views
 1. Town and Country Planning Dept (JPDB) on the Policy of land reclamation in Penang
 2. Penang Development Corporation on Land Reclamation in Penang by PDC
 3. Dept of Irrigation and Drainage on its views on coastal land reclamation
- Department of Environment (DOE) gave its views on the requirements of EIA for land reclamation
- Views generally reflect what the guidelines are, but why are they not applied? More questions than answers.

Issues of coastal land reclamation

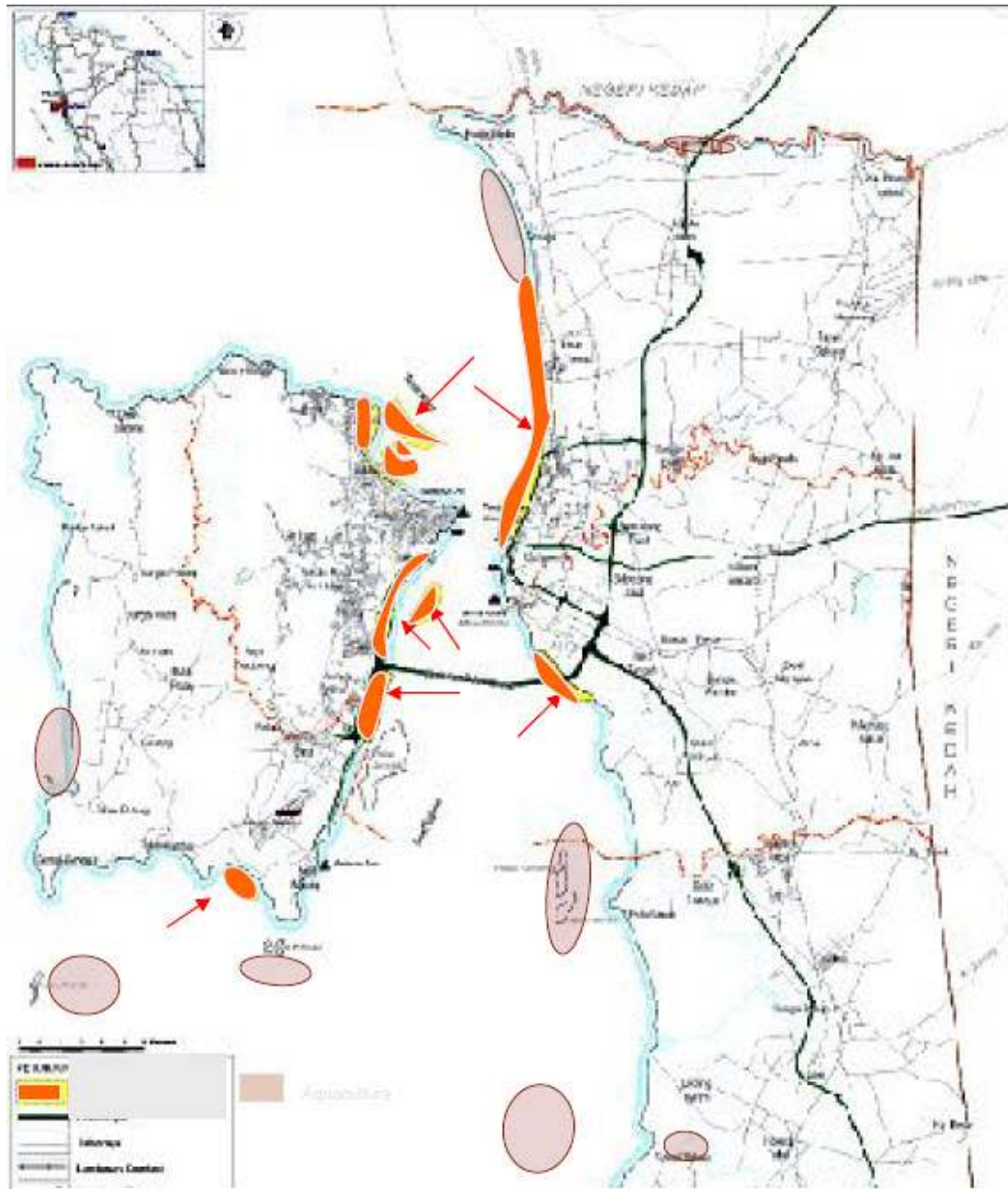
- **Present and future land reclamation.** Coastal land reclamation in Penang as strategy to increase amount of land especially on island and this will continue in the future
- **Structure plan proposals** for coastal land reclamation is up till 2020 and more proposals is expected in next structure plans
- ***DOE EIA guidelines*** on land reclamation not followed
- ***No documentation of impacts.*** Environmental impacts of past, present and future projects still to be documented professionally
- ***Legal issues of reclaimed land*** not resolved
- ***Need for integrated coastal land reclamation policy*** and development control in all future land reclamation proposals



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Potential for land reclamation

- **How much land can be reclaimed?**
 - Admiralty chart and bathymetry of Penang waters indicate shallow coastal waters and large potential of land reclamation at low economic cost
 - One estimate in the 1970s indicated that up to 16,000 hectares may be reclaimed if based on water depth
- **Potential conflicts of land reclamation**
 - One project may affect other parts of coastline or their functions, such as ports or hotels
 - Disrupting the natural coastal processes that are in dynamic equilibrium and causes sedimentation and beach erosion in other parts
 - Loss of habitats such as beaches and mangroves
 - Actual amount of reclaimable land actually much lower



Existing and Proposed Reclamation Areas

Source: Penang Structure Plan

Land reclamation in the Penang Structure Plan up to 2020

- Map of Penang and reclamation sites
- 3-4 islands in Tanjong Tokong to Gurney Drive
- Island in middle bank between Penang Island and Sebarang Perai
- South east of island around Batu Maung and Gertak Sanggul
- North of Butterworth container port
- Mud flats in Sebarang Perai south of Penang bridge

Past land reclamation in Penang

- Land reclamation in **Koay jetty** of clan jetties for residential flats in 1970s
- **Bayan Baru industrial estate** in 1980s and PDC developments in 1990s
- **Jelutong land reclamation** for coastal highway in 1990s
- **Tanjung Tokong** in 2000s for residential and commercial development

Tanjung Tokong Land Reclamation

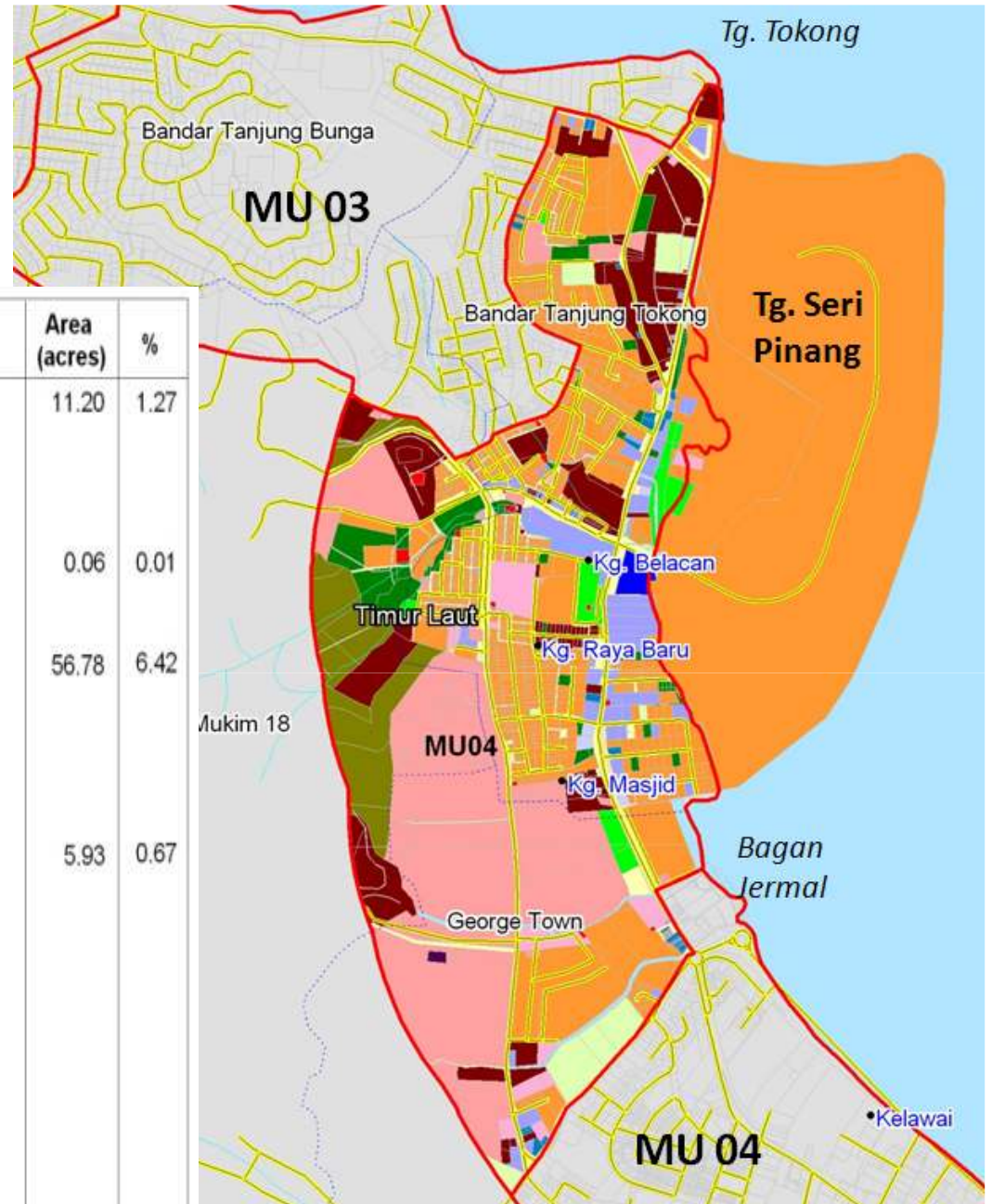
- Largest land reclamation to date for residential and commercial purposes with 3 islands making a total of 980 acres given to private developer
- Serious siltation in Gurney Drive after phase 1 of land reclamation of 240 acres
- Only preliminary EIA submitted and approved internally by DOE in the 1980s and no monitoring of adverse impacts when land reclamation took place
- Approval in principle given for further 2 islands reclamation of 740 acres despite adverse impacts of phase 1



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TYPE OF LANDUSE	Area (acres)	%		Area (acres)	%
Housing	514.47	58.20	Open Spaces	11.20	1.27
 Housing			 Open spaces		
 Housing Scheme					
Commercial	34.70	3.93	Agriculture	0.06	0.01
 Retail 'Runcit'			 Fruits		
 Retail Service			Forestry	56.78	6.42
 Shopping Complexes			 "Hutan/Tumbuhan Semulajadi"		
 Pump Station			 "Semak/Belukar"		
Industry	0.45	0.05	Water Bodies	5.93	0.67
 Store			 Water Bodies		
Public & Government Use	179.05	20.26	Others		
 Religious Facilities			 Road		
 Education			 Management Unit		
 Government Use			 Mukim		
Infrastructure & Utilities	81.33	9.20	 District		
 Road & Parking					
 Utility					
Total				883.97	



Land use plan

Future development in Tanjung Tokong

Development under structure plan (2005 -2020)

Tebusguna Pembangunan Tangung Seri Pinang

- Kerja tebusguna untuk pembangunan “Waterside”
- marina, promenade, jeti, komersial, restoran, kediaman, kemudahan utk kapal layar & sukan laut, membeli belah & industri makanan

Proposed Tanjung Seri Pinang Reclamation

marina, promenade, pier, commercial outlets, restaurants, residential suites, yachting & sea sports activities, shopping and dining.



Artist illustration- Development in islands of Tg Seri Pinang

Land reclamation in the Straits of Penang

- Proposed island in the middle bank in Structure Plan but this is important nursery and feeding area of commercial fish species
- Jelutong highway and IJM development
- Bayan Baru reclamation for industrial development
- Queensbay land reclamation
- Batu Maung land reclamation
- Proposed land reclamation in Perai

Some other future projects

- Penang port proposed land reclamation of 400 hectares (about 1,000 acres) for new mini free industrial zone and halal logistic hub in Butterworth
- Port deepening (RM350 million)
- North of Penang bridge 61.5 hectares
- South of Penang bridge 14 ha +25 hectares of Bayan Mutiara

Future development

Bayan Mutiara

- by PDC
- 47.62 ekar
- Tebusguna
- kompleks kerajaan, kediaman mewah, hotel, dll.

(government complexes, residential properties like waterfront villa, bangalows, service apartments and hotels)



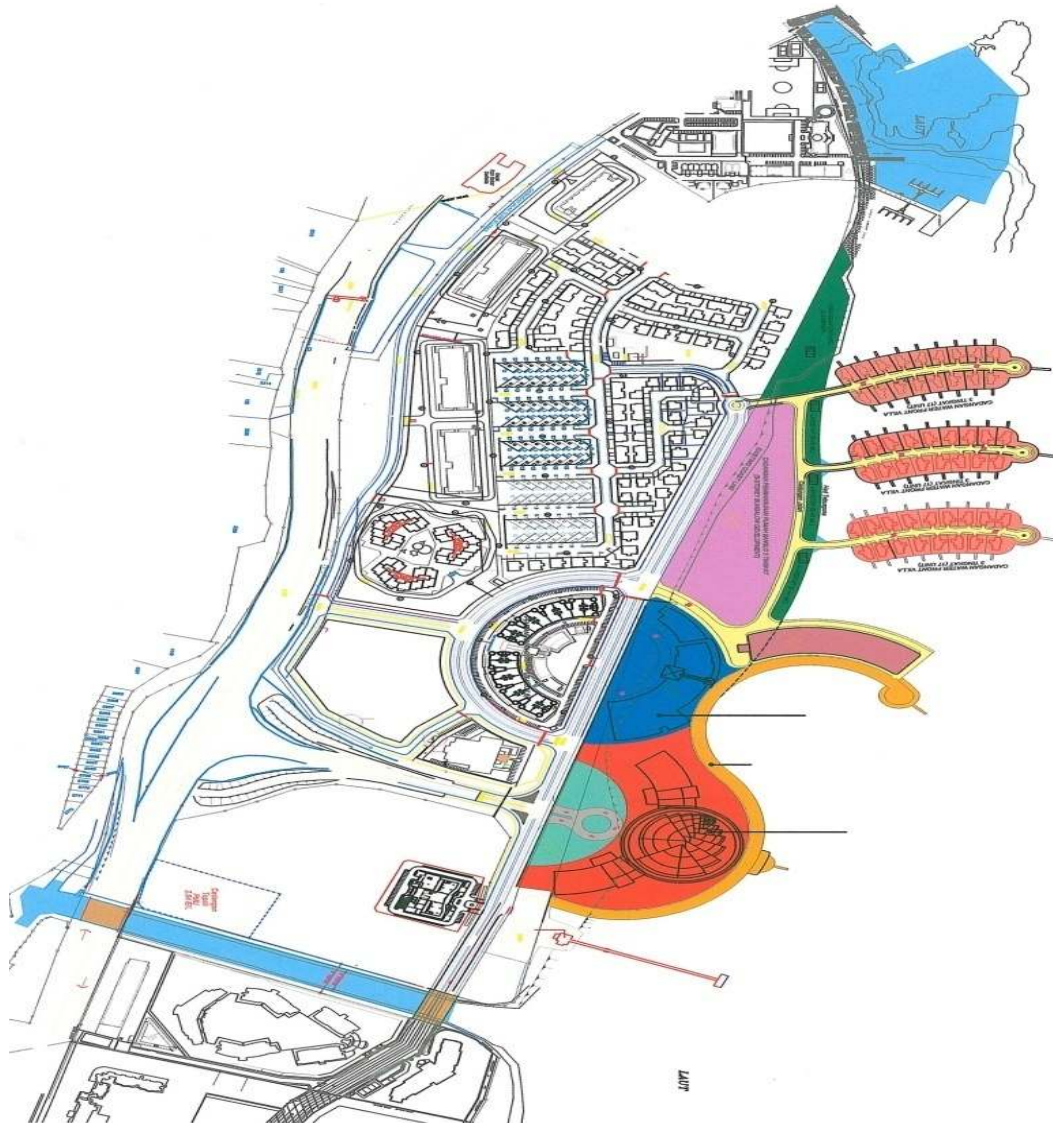
Land use

Future development

Pembangunan Bayan Mutiara

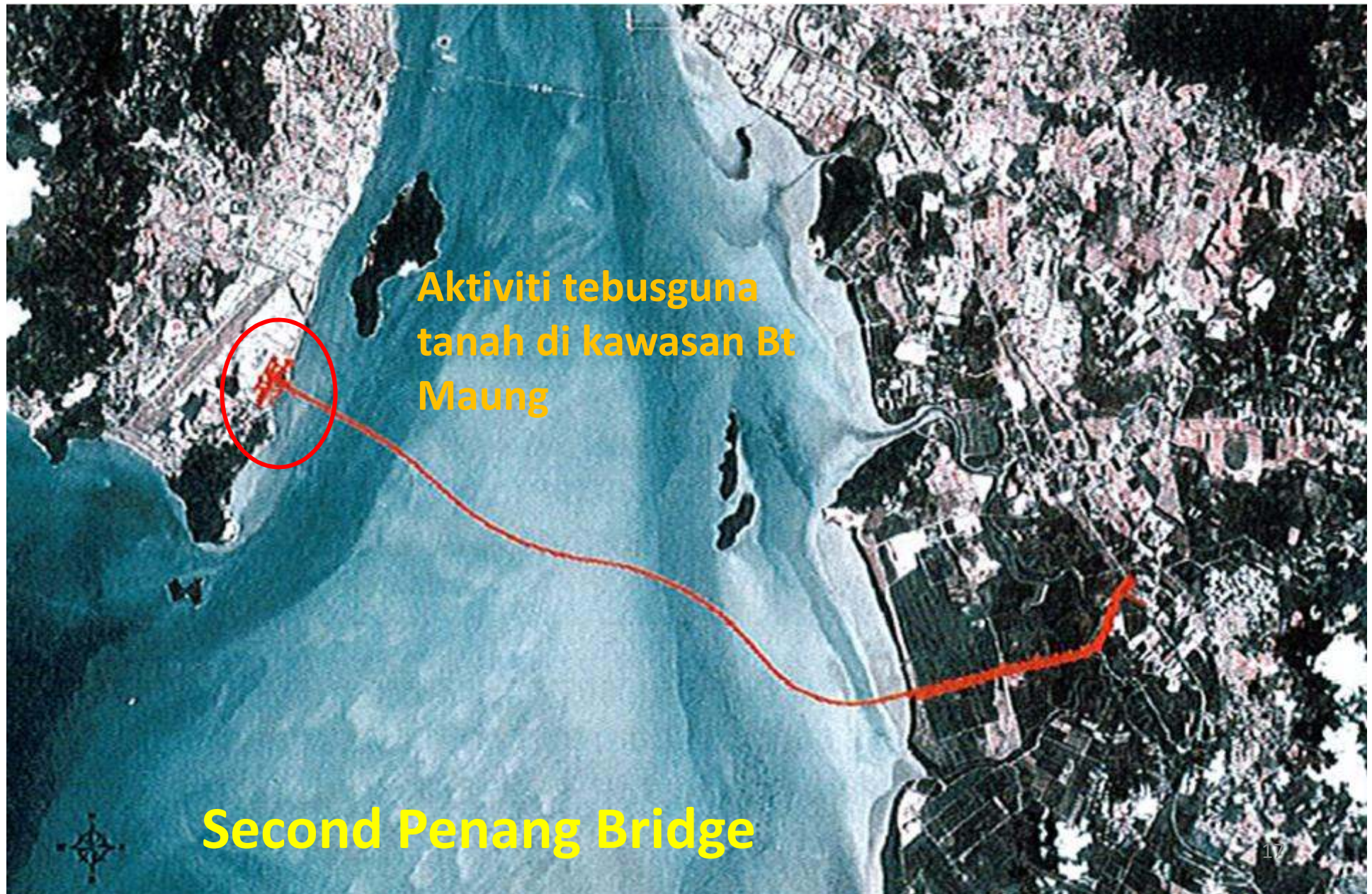
- projek PDC
- 47.62 ekar
- Tebusguna
- kompleks kerajaan, kediaman mewah, hotel, dll.

(government complexes, residential properties like waterfront villa, bangalows, service apartments and hotels)



Gold Coast Resort

Future development at second bridge site



Future development

- i. Jambatan Pulau Pinang Kedua
- ii. Southbay dan Sunway Mutiara
- iii. Pembesaran Pelabuhan Tuna Antarabangsa

- i. Second Penang Bridge
- ii. Urban developments such as Southbay and Sunway Mutiara
- iii. International Tuna Port expansion



Proposed International Tuna Port, Batu Maung

Environmental impacts of land reclamation

- Land reclamation methods mainly from sea sand pumped from sea bottom
- Sand preferred as fill material as mud too soft for construction and mud pushed out into sea causing pollution and sedimentation all along coast
- Beach erosion takes place as dynamic equilibrium disrupted. Reclaimed area often blocks flow of currents and sediment transport
- Earth and soil not much used because of being not available and higher cost though used in some other countries. Sand also brought from other areas and neighboring states and countries

Pumping sea sand to reclamation area



Major environmental impacts

- During land reclamation
 - Loss of natural ecosystem, e.g. Mangroves, fishing grounds
 - Increased sedimentation and water pollution as marine mud and clay pushed out to sea
- After land reclamation
 - Change of current patterns and water movement
 - Sedimentation and erosion at different parts of coast
- Impacts of consequent development
 - Traffic impacts
 - Visual and esthetic impacts

Department of Environment guidelines

1. A Handbook of EIA Guidelines
2. EIA Guidelines for Coastal and Land reclamation Activities
3. Guidelines for erosion control of development projects in coastal zones 1/97
4. Guidelines for preparation of coastal engineering hydraulic studies and impact evaluation 2001
5. EIA Guidelines for Coastal and Land Reclamation

EIA guidelines for Coastal and Land Reclamation Projects

- Potential significant projects
 - Physical system
 - Biological system
 - Socio-economic system
- Economic assessment, including cost benefit analysis
- Mitigation and Abatement measures
- Environment Management Plan
 - Includes monitoring of impacts and effectiveness of mitigation measures

Why no implementation of DOE guidelines in major land reclamation?

- Preliminary versus detailed EIA
- No detailed EIA even for large projects like Tanjung Tokong
 - Preliminary EIA reviewed and approval in-house in DOE often without expertise or external expert input
 - Little or no public participation of affected stakeholders
- No monitoring of environmental impacts and effectiveness of proposed mitigation methods
- No accountability on part of developer to reverse adverse impacts
- No accountability of EIA consultants

Need to review all land reclamation projects

- Tanjung Tokong land reclamation
 - Preliminary EIA done 20 years ago
 - EIA predicted no adverse environmental impacts EIA proven wrong. Who is supposed to monitor impacts?
 - Need a review and inquiry of what went wrong and how such a major mistake can take place
 - Who is responsible for siltation problems and who should pay for damage?
 - DOE? EIA consultants? Developers? Government who approved the project
 - Should the new state government agree in principle to the further reclamation of 2 more large islands?
 - Should a new detailed EIA be required before approval of any more land reclamation?

Who has the right to reclaim land?

- ***Only State government*** has sole legal right to reclaim land but sometimes this right given away
- ***Economic benefits for public.*** Land in principle should not be given out to private developers as land sale as a source of income of the state. This is common practice in other countries such as Singapore and Hong Kong for government agencies to do land reclamation and then auction to get best economic deal
- ***Meeting social needs first before private profit.*** State also cannot determine land use for social needs after rights to reclaim given away to private sector. Land reclamation should be for public and social purposes which should be a higher priority than private development
- Ensure that ***illegal land reclamation***, such as Tanjung Bungah “sore thumb” is stopped as this is a challenge to state authority

What should land reclaimed be used for?

Public open space requirements in Structure Plan

Based on 1st Penang Structure Plan of 4 ha of public open space per 2500 persons, need in the region of **936 hectares on Penang Island** and **1000 ha in Sebarang Perai**. Present provision is **274 ha on Island** and **175 in Sebarang Perai**.

There is a shortfall of shortfall is 660 ha on Island and 825 in Sebarang Perai . **Total shortfall is 1486 ha.**

How can Penang provide public open space?

Strategy to provide recreational space that is lacking in urban areas is through land reclamation

Public amenities

Picnic areas, recreational space, bicycle lanes, jogging tracks, sports activities and community centers may have to come from reclaimed land

Development control of reclaimed land

Development control

Land use for public open space and not development right up to water's edge

Height control to prevent obstruction of sea view

Setback from high water mark

Public access and use of coast line and beaches

Residential development and not exclusive gated communities

Commercial development including restaurants and food courts for the public and tourism

Industrial development if appropriate

Legal issues of reclaimed land

- Reclaimed land and the ***Malaysian National Land Code***
 - Free hold versus lease-hold land as stipulated under National Land Code, Penang policy of giving developers freehold status is illegal
- ***Who controls development in reclaimed land?*** Why MPPP and MPSP has no control over development of reclaimed land? Legal loophole?
- ***All beaches are public*** from high water mark to 60 meters but developers claim all land to water front. Why is this legal requirement ignored?
- ***Height control guidelines*** in reclaimed land not applied and high rise block view and access to water front

What is needed in Penang on land reclamation?

- ***Policy and a master plan for coastal land reclamation***
 - Identification of social needs for reclamation
 - Identification of possible conflicts of land reclamation as adverse impacts on other parts of coastline
 - Development policy and control must consider all stakeholders interest
 - Development control guidelines, including height control
- ***Detailed EIA and not preliminary*** for all major land reclamation with full public participation and hearings
- ***Review of existing and future land reclamation proposals*** by impartial task force with the necessary expertise. What lessons for the future?

Institutional mechanism for planning and implementation of land reclamation

- ***Current fragmentation of authority***

responsibility for implementation split to different department and agencies

- Land office, District office, PDC, MPPP, MPSP
- Planning Department, DOE, JKR, DID, Marine Department

- ***Land reclamation authority***

- Coordinating agency needed.
- PDC to be given back authority or establish new authority