Executive Summary

Tanjung Perak Port Development in Lamong Bay

2010
1.1. **Background**

Tanjung Perak Port is definitely the second largest port in Indonesia and extremely potential to support the traffic of goods from and to the Eastern territory of Indonesia. Due to the getting increasing activities in Tanjung Perak Port, PT. (Persero) Pelabuhan Indonesia III plans to develop facilities in Tanjung Perak Port. In the mean time, the area required for such port development is obviously limited. Accordingly, it is planned to develop the port facilities in Lamong Bay.

Tanjung Perak Port development in Lamong Bay is exclusively for container yard construction for anticipating the getting increasing container transportation activities due to global market demands.

With reference to the Regulation of State Minister of Environment Nr. 11 Year 2006 about Business Line and/or Activities to be provided with Environment Impact Assessment (EIA), the Tanjung Perak Port Development in Lamong Bay is to be provided with EIA. In view of the aforementioned, in attempt to develop Tanjung Perak Port in Lamong Bay, it is provided with EIA that has been provided with EIA in year 2001. The EIA was approved by the Central Communication EIA Commission with an approval Nr. KP.137 A Year 2001 on 04 May 2001. Unfortunately, to date the required area for the proposed development is still inadequate. With reference to State Regulation Nr. 27 Year 1999 about Environmental Impact Assessment (EIA), the approval on the EIA of Tanjung Perak Port Development is out of date since the development was not yet realized within 3 (three) years’ time as of the date of the approval. Therefore, in order to execute Tanjung Perak Port Development
plan in Lamong Bay, it requires re-application for EIA approval from the competent authorities.

The EIA covers studies in to what extent the impacts, both positive and negative ones, that may arise from a business line and/or activities to the environment. The positive impacts are to be maximized, while the negative ones are to be minimized in order to prevent decreased environment quality. The application of this EIA is supposed to support sustainable eco-friendly development.

1.2. Objectives and Benefits of Tanjung Perak Port Development in Lamong Bay

The objectives of Tanjung Perak Port Development in Lamong Bay are:

- Reducing operation density in Tanjung Perak Port, especially for container loading and unloading and anticipating any possible over capacity;
- Cutting down vessel queue for mooring in the port in case of stagnation leading to negative impacts to port image in international forum;
- Creating job opportunities during and post construction phases, i.e.: sustainable port operations through economic activities;

The benefit generated from Tanjung Perak Port Development in Lamong Bay is to support national development, specifically for smoothening port activities undertaken by PT. (Persero) Pelabuhan Indonesia III. In addition, economic sectors in areas surrounding Tanjung Perak Port are supposed to develop.

1.3. Jurisprudences

The EIA is prepared based on the prevailing jurisprudences and in consistent with the plans of Tanjung Perak Port Development in Lamong Bay. The jurisprudences related with the EIA are, inter alia:

<table>
<thead>
<tr>
<th>Acts</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Act Nr. 5 Year 1960 about Agrarian Principles</td>
<td>Related with hypothetical significant impact priority about spatial utilization</td>
</tr>
<tr>
<td>Indonesian Act Nr. 5 Year 1990 about Biological Natural Resources and Their Ecosystems</td>
<td>Adopted as reference that the activity plans are to be consistent with water resource conservation efforts</td>
</tr>
<tr>
<td>Act Nr. 23 Year 1992 about Health</td>
<td>Adopted as reference to Environmental Impact Assessment in View of Health Aspect</td>
</tr>
<tr>
<td>Indonesian Act Nr. 32 Year 2004 about Local Government</td>
<td>Referring to the authorities of provincial/city/regency government in relation with activity plans</td>
</tr>
<tr>
<td>Indonesian Act Nr. 26 Year 2007 about Spatial Arrangement</td>
<td>Adopted as reference in determining activity site</td>
</tr>
<tr>
<td>Act Nr. 27 Year 2007 about Coastal Area and Small Island Management</td>
<td>Adopted as reference in managing and observing coastal areas and small islands</td>
</tr>
<tr>
<td>Acts</td>
<td>Considerations</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
</tr>
<tr>
<td>• Indonesian Act Nr. 17 Year 2008 about Maritime Affairs</td>
<td>Adopted as reference related with seaport transportation management and operations</td>
</tr>
<tr>
<td>• Indonesian Act Nr. 22 Year 2009 about Surface Traffic and Transportation</td>
<td>Adopted as reference related with hypothetical transportation significant impacts and road damages due to mobilization and operation activities</td>
</tr>
<tr>
<td>• Indonesian Act Nr. 32 Year 2009 about Environment Protection and Management.</td>
<td>Adopted as reference in environmental management for activity planning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State Regulations</th>
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</tr>
</thead>
<tbody>
<tr>
<td>• State Regulation Nr. 7 Year 1999 about Spesies Burung Langka yang Dilindungi</td>
<td>Adopted as reference related with hypothetical significant impact in water bird habitat decrease</td>
</tr>
<tr>
<td>• State Regulation Nr. 18 Year 1999 about Hazardous and Poisonous Waste Treatment</td>
<td>Adopted as reference in managing hazardous and poisonous waste</td>
</tr>
<tr>
<td>• State Regulation Nr. 19 Year 1999 about Pollution and/or Sea Destruction Control</td>
<td>Adopted as reference in controlling seawater pollution control</td>
</tr>
<tr>
<td>• State Regulation Nr. 27 Year 1999 about Environmental Impact Assessment.</td>
<td>Adopted as basis in preparing environmental impact assessment</td>
</tr>
<tr>
<td>• State Regulation Nr. 41 Year 1999 about Air Pollution Control</td>
<td>Adopted as reference for controlling air pollution</td>
</tr>
<tr>
<td>• State Regulation Nr. 82 Year 1999 about Water and Sea Transportation</td>
<td>Regulating transportation in port waters</td>
</tr>
<tr>
<td>• State Regulation Nr. 85 Year 1999 about : Amendment to State Regulation Nr. 18 Year 1999 about Pollution and/or Sea Destruction Control</td>
<td>Adopted as reference in managing hazardous and poisonous waste</td>
</tr>
<tr>
<td>• State Regulation Nr. 81 Year 2000 about Navigation Affairs</td>
<td>Adopted as reference in operational activities</td>
</tr>
<tr>
<td>• State Regulation Nr. 69 Year 2001 about Port</td>
<td>Adopted as reference in operational utilization of hazardous and poisonous materials</td>
</tr>
<tr>
<td>• State Regulation Nr. 74 Year 2001 about Hazardous and Poisonous Materials</td>
<td>Adopted as reference in operational activities</td>
</tr>
<tr>
<td>• State Regulation Nr. 82 Year 2001 About Water Quality Management and Water Pollution Control</td>
<td>Adopted as reference in water environment management and observation</td>
</tr>
<tr>
<td>• State Regulation Nr. 51 Year 2002 about Shipping</td>
<td>Adopted as reference in operation activities</td>
</tr>
<tr>
<td>• State Regulation Nr. 16 Year 2004 about Area Utilization</td>
<td>Adopted as reference in determining proper area utilization and development</td>
</tr>
<tr>
<td>• State Regulation Nr. 38 Year 2007 about Divisions of Authorities among National Government, Provincial Government and City/Regency Government</td>
<td>Determining authorities in environmental management and observation</td>
</tr>
<tr>
<td>• State Regulation Nr. 60 Year 2007 about Fish Resource Conservation as Guides to Fish Resource Preservation</td>
<td>Adopted as reference that activity planning is to be consistent with fish resource conservation efforts</td>
</tr>
</tbody>
</table>
# State Regulations and Considerations

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>State Regulation Nr. 26 Year 2008 about National Spatial Planning</td>
<td>Adopted as reference in determining proper area utilization and development</td>
</tr>
</tbody>
</table>

# Decision of President and Considerations

<table>
<thead>
<tr>
<th>Decision of President</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision of President of Republic of Indonesia Nr. 65 Year 1980 about Ratification of International Convention for The Safety of Life at The Sea 1974 (SOLAS 74).</td>
<td>Adopted as reference in operation activities</td>
</tr>
</tbody>
</table>

# Regulations of State Minister of Environment and Considerations

<table>
<thead>
<tr>
<th>Regulations of State Minister of Environment</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation of State Minister of Environment Nr. 08 Year 2006 about Guides to Environmental Impact Preparation</td>
<td>Adopted as reference in preparing Environmental Impact Assessment</td>
</tr>
<tr>
<td>Regulation of State Minister of Environment Nr. 11 Year 2006 about Business Plans and/or Activities to be Provided with Environmental Impact Assessment</td>
<td>Adopted as reference in preparing Environmental Impact Assessment</td>
</tr>
<tr>
<td>Regulation of State Minister of Environment Nr. 05 Year 2009 about Waste Management in Port</td>
<td>Adopted as reference in hazardous and poisonous waste handling</td>
</tr>
</tbody>
</table>

# Regulations of Minister of Communication and Considerations

<table>
<thead>
<tr>
<th>Regulations of Minister of Communication</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Regulation of Minister of Communication Nr. KM 4 Year 2005 about Prevention of Wate Pollution from Vessels</td>
<td>Adopted as reference for pollution prevention and environmental observation</td>
</tr>
<tr>
<td>Regulation of Minister of Communication Nr. 7 Year 2005 about Shipping Navigation Aids</td>
<td>Adopted as reference in determining seawater transportation transportation</td>
</tr>
<tr>
<td>Regulation of Minister of Communication Nr Km 14 Year 2006 about Surface Traffic Engineering and Management</td>
<td>Adopted as reference in improving transportation network performance</td>
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</table>

# Decisions of Minister of Communication and Considerations

<table>
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<tr>
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<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision of Minister of Communication Nr. KM 215 Year 1987 about Waste Storage Provision and Vessel</td>
<td>Adopted as reference for pollution prevention and environmental observation</td>
</tr>
<tr>
<td>Decision of Minister of Communication Nr. KM 286 Year 2002 about Mandatory Piloting in Water Areas</td>
<td>Adopted as reference in determining seawater transportation transportation</td>
</tr>
<tr>
<td>Decision of Minister of Communication Nr. KM 54 Year 2006 about Pelabuhan Tanjung Perak Port Master Plan</td>
<td>Adopted as reference in preparing Environmental Impact Assessment</td>
</tr>
</tbody>
</table>
# Environmental Impact Assessment

## Tanjung Perak Port Development in Lamong Bay

### Decisions of State Minister of Environment

<table>
<thead>
<tr>
<th>Decision of State Minister of Environment</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Decision of State Minister of Environment Nr. KEP 48/MENLH/11/1996 about Noise Standards</td>
<td>Adopted as reference in evaluating degree of noise in an area</td>
</tr>
<tr>
<td>Decision of State Minister of Environment Nr. 54/MENLH/10/1997 about Air Pollution Index Standards</td>
<td>Adopted as reference in analyzing impact to air quality</td>
</tr>
<tr>
<td>Decision of State Minister of Environment Nr. 201 Year 2004 about Mangrove Damage Criteria</td>
<td>Adopted as reference in determining degree of mangrove destruction.</td>
</tr>
<tr>
<td>Decision of State Minister of Environment Nr. 45 Year 2005 about Guides to Preparation of Environmental Management Plan and Environmental Observation Plan Reports</td>
<td>Adopted as reference to legal certainty in environmental impact management and environmental impact observation reporting</td>
</tr>
<tr>
<td>Decision of State Minister of Environment Nr. 05 Year 2007 about Hazardous and Poisonous Waste in Port</td>
<td>Adopted as legal reference in managing hazardous and poisonous waste in port activities</td>
</tr>
</tbody>
</table>

### Decision of Minister of Environment and Head of Environmental Impact Management Agency

<table>
<thead>
<tr>
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<tr>
<td>Decision of Minister of Environment and Head of Environmental Impact Management Agency Keputusan Nr. Kep. 056 Year 1994 about Guides to Significant Impact Measurement.</td>
<td>Adopted as basis for determining significant impacts</td>
</tr>
<tr>
<td>Decision of Minister of Environment and Head of Environmental Impact Management Agency Keputusan Nr. KEP. 299/11/Tahun1996 about Technical Guides to Social Aspects in Preparing Environmental Impact Assessment</td>
<td>Adopted as guides in preparing environmental impact assessment in term of social aspects</td>
</tr>
<tr>
<td>Decision of Minister of Environment and Head of Environmental Impact Management Agency Keputusan Nr. 08 Year 2000 about Community Involvement and Information Openness in Environmental Impact Assessment Proces.</td>
<td>Adopted as reference in community involvement process in preparing environmental impact assessment</td>
</tr>
</tbody>
</table>

### East Java Provincial Regulations

<table>
<thead>
<tr>
<th>East Java Provincial Regulations</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Java Provincial RegulationNr. 02 Year 2006 about East Java Provincial Spatial Plan</td>
<td>Adopted as reference in spatial development</td>
</tr>
<tr>
<td>Surabaya City Regulation Nr. 3 Year 2007 about Surabaya City Spatial Plan</td>
<td>Adopted as reference in planning main facility constructions in Surabaya City</td>
</tr>
</tbody>
</table>
Surabaya City Regulations | Considerations
---|---
- Surabaya City Regulation Nr. 1 Year 2004 about Disturbance Permit | Adopted as reference for legal certainty to business operation permit
- Surabaya City Regulation Nr. 12 Year 2006 about Analysis on Surface Transportation Impacts | Adopted as reference in analyzing impacted road networks due to traffic increase during Tanjung Perak Port Development in Lamong Bay.

Decision of Director General of Surface Communication | Considerations
---|---
- Decision of Director General of Surface Communication Nr. SK 726/AJ.307/DRJD/2004 about Technical Guides in Surface Transportation of Heavy Duty Equipment | Adopted as reference in surface transportation of heavy duty equipment

Decisions of Governor of East Java Province | Considerations
---|---
- Decision of Governor of East Java Province Nr. 660.3/25781/025/1986 about Environmental Impact Handling. | Adopted as reference in handling pollution impact
- Decision of Governor of East Java Province Nr. 154/1994 about Business Line and/or Activities to be Provided with Environmental Impact Assessment | Regulation as basis for preparing environmental impact assessment
- Decision of Governor of East Java Province Nr. 08 Year 2004 about Operational Guides to Community Involvement in Information Openness in Environmental Impact Assessment Process in East Java Province | Adopted as reference in community involvement in information openness in environmental impact assessment process in East Java Province
- Decision of Governor of East Java Province Nr. 61 Year 2006 about Space Utilization in Regional Scale Dense Area in East Java Province. | Adopted as reference in spatial development
- Regulation of Governor of East Java Province Nr. 10 Year 2009 about Air Ambient Quality Standard and Immovable Pollution Sources in East Java Province. | Adopted as reference in evaluating impact on ambient air quality.

1.4. Descriptions of Business Plans and/or Activities

General
The on-going process and current preparation of detailed engineering design (DED) for Tanjung Perak Port Development in Lamong Bay, the construction plans are getting apparent. The revised activity plans will be described in the following sub-chapter that will be adopted for predicting impacts detailed in the following chapter.

Descriptions of Activity Plans
The Tanjung Perak Port Development in Lamong Bay is exclusively for construction container terminal and comprises constructions of causeway, connecting bridge, container yard abd container freight station (CFS), office building, gare truck parking lot, pedestrian, open green space, and pier and trestle.
It does not require land acquisition and community resettlement especially for the construction of access roads in Tambak Osowilangun Village. The whole area required for this construction belongs to PT. Pelabuhan Indonesia III, and it present the area has been reclamation as road. The construction activities have been covered in the results of EIA review approved by the Central EIA Communication Commission, Number KP. 137A Year 2001. Accordingly the construction of access roads is excluded from the operation activities of container terminal in Tanjung Perak Port in Lamong Bay. The comprehensive plans of Tanjung Perak Port Development in Lamong Bay are represented in Table 2.1.

Table 2.1. Construction Activities in Tanjung Perak Port in Lamong Bay

<table>
<thead>
<tr>
<th>Nr</th>
<th>Descriptions</th>
<th>Unit</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Causeway and connecting bridge works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Causeway reclamation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length</td>
<td>m'</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>Width</td>
<td>m'</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>Area</td>
<td>m²</td>
<td>70,000</td>
</tr>
<tr>
<td></td>
<td>Reclamation Volume</td>
<td>m³</td>
<td>173,000</td>
</tr>
<tr>
<td>b</td>
<td>Connecting Bridge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length</td>
<td>m'</td>
<td>2,560</td>
</tr>
<tr>
<td></td>
<td>Width</td>
<td>m'</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Area</td>
<td>m²</td>
<td>32,000</td>
</tr>
<tr>
<td>2</td>
<td>Shallow water reclamation works for container yard and supporting facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reclamation Volume</td>
<td>m³</td>
<td>5,844,000</td>
</tr>
<tr>
<td></td>
<td>Container yard size, Area, 4 Blocks @ 96,750 m²</td>
<td>m²</td>
<td>387,000</td>
</tr>
<tr>
<td></td>
<td>Terminal supporting facilities</td>
<td>m²</td>
<td>113,000</td>
</tr>
<tr>
<td>3</td>
<td>Pier and trestle works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Piers, sized 645m x 40m and 635m x 40m</td>
<td>m²</td>
<td>51,200</td>
</tr>
<tr>
<td>b</td>
<td>Trestle, 2 units sized 235m x 12m and 1 unit sized 235m x 9.5m</td>
<td>m²</td>
<td>7,872.5</td>
</tr>
</tbody>
</table>

Source: Survey Investigation Design (SID), Construction of Container Terminal II in Lamong Bay, Tanjung Perak Port, Surabaya, 2008

1.5. **Review to Significant Impacts**

The evaluation on significant impacts is a holistic review. Various environmental components significantly impacted (both positively and negatively) are reviewed as a unity as they are all inter-related and affect one another. The significant impacts in terms of relationship between construction plans and fundamentally changing environmental components can be classified as follows:

1. Coastal ecological changes
2. Community welfare changes
1.5.1. **Coastal Ecological Changes**

The aspects of coastal ecological changes are related with the impacts of activities of construction of Tanjung Perak Port Development in Lamong Bay to chemical-physical environmental components. The impacted chemical-physical components comprise: air quality, water quality, water current pattern and sedimentation as well as flood surface.

The impact of decreased seawater quality due to preparation of road for the construction of causeway, shallow water reclamation preparation and compaction for container yard and structural construction of pier and trestle. The activities are executed gradually, initiated with construction of causeway, connecting bridge (bridge foundation piling), shallow water reclamation preparation and compaction for container yard, structural construction of pier and trestle. The suspended soil can accumulate when those activities are not executed in good order. The suspended soil may be slightly different from the its state of condition without construction activities.

In the construction phase, the activities also lead to changes in coastal and river ecologies in form of increased surface of runoff and change in water current patterns as well as sedimentation. The increased surface of runoff takes place when the tidal water runs on the river flood. The reclamation that will be undertaken will not change the topography and morphology of the river. Accordingly, the degree of river water surface depends on the volume of running water and seawater surface. With reference to the estimated impacts, it shows that the increased water surface in the river estuary will be 0.04 cm maximally in 2 km distance from the river estuary. On the other hands, in Semeni River, Kandangan River, Balong River, Krembangan River and Greges River, the water surface increase will take place along 2 km from the river estuaries towards river upper courses. The farther the distance the less increase of water surface will be. In addition, the reclamation activities for constructing causeway and container yard in the water area will change the water current patterns and sedimentation. The increase of sedimentation is practically minor and not affecting activities in port or change of coastal lines.

1.5.2. **Changes in Community Welfare**

During the container terminal operation, it is expected to open greater job and business opportunities for the local people, especially during labor recruitment. It will enhance the community welfare. Yet, in case of non-local people recruitment, it may trigger horizontal conflicts between the local people and the migrant workers that will finally lead to security disorder. Besides, significant number of migrant workers and migrant vendors due to the operations of the container terminal will be potential to directly lead to security disorder in the area when it is not strictly controlled. In conclusion, it is preferable to prioritize the local people.
This chapter describes the management of significant impacts resulted from the environment estimation and evaluation as reported in Chapter 5 and Chapter 6 of the Environmental Impact Statement Documents.

2.1. CONSTRUCTION PHASE
2.1.1. Reclamation for Preparing Road Construction
A. Impact on Increased River Runoff Surface

- **Source of Impact**: Reclamation for preparing road construction
- **Parameter of Impact**: Getting higher and further impacts of seawater runoff.
- **Objective of Environmental Management Plan**: Assisting the local government to supply early information to Bengawan Solo River Management Center.
- **Environmental Management**: Reminding the Bengawan Solo River Management Center to well consider that the construction activities will increase the riverwater runoff surface for about ±4 cm in 2-year cycle of flood due to runoff, especially in Lamong River.

- **Environmental Management Site**: Estuary of Lamong River
- **Environmental Management Period**: Pre-construction
- **Environmental Management Institution**
  - **Initiator**: PT. Pelabuhan Indonesia III
  - **Supervisor**: East Java Provincial Public Waterworks Service, Bengawan Solo River
B. Impact on Decreased Seawater Quality
- Source of Impact: Reclamation for preparing road construction
- Parameter of Impact: Decision of Minister of Environment Nr. 51/2004 about Quality Standards of Seawater, especially suspended solid, annexed thereto.
- Objective of Environmental Management Plan: Minimizing decrease on seawater quality due to reclamation for preparing the construction of causeway and container yard preparation and compaction.
- Environmental Management: Construction of rock embankment before construction for preventing reclamation material overflow.
- Environmental Management Site: Causeway reclamation site
- Environmental Management Period: During area reclamation.
- Environmental Management Institution:
  - Initiator: PT. Pelabuhan Indonesia III
  - Supervisor: Surabaya City Environment Agency

C. Impact on Change of Water Current Pattern and Sedimentation
- Source of Impact: Reclamation for preparing road construction
- Parameter of Impact: Increased process of sedimentation
- Objective of Environmental Management Plan: Controlling sedimentation due to construction activities
- Environmental Management: Dredging Sememi River estuary
- Environmental Management Site: In front of Sememi River estuary
- Environmental Management Period: When the elevation in the riverbed in the estuary increases minimally 50 cm.
- Environmental Management Institution:
  - Initiator: PT. Pelabuhan Indonesia III
  - Supervisor: Surabaya City Environment Agency and Surabaya City Highway and Drainage Service
### 2.1.2 Reclamation of Shallow Water for Container Yard and Terminal Facilities

#### A. Impact on Increased Surface of River Runoff

<table>
<thead>
<tr>
<th>Source of Impact</th>
<th>Reclamation of shallow water for constructing container yard and terminal facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter of Impact</td>
<td>Getting higher and further impacts of seawater runoff.</td>
</tr>
<tr>
<td>Objective of Environmental Management Plan</td>
<td>Assisting the local government to supply early information to Bengawan Solo River Management Center.</td>
</tr>
<tr>
<td>Environmental Management</td>
<td>Reminding the Bengawan Solo River Management Center to well consider that the construction activities will increase the riverwater runoff surface for about +4 cm in 2-year cycle of flood due to runoff, especially in Lamong River.</td>
</tr>
</tbody>
</table>

| Environmental Management Site | Lamong River estuary |
| Environmental Management Period | Pre-construction |
| Environmental Management Institution | |
| Initiator | PT. Pelabuhan Indonesia III |
| Supervisor | East Java Provincial Public Waterworks Service, Bengawan Solo River Management Center and Surabaya City Environment Agency. |

#### B. Impact on Decreased Seawater Quality

<table>
<thead>
<tr>
<th>Source of Impact</th>
<th>Reclamation of shallow water for constructing container yard and terminal facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter of Impact</td>
<td>Decision of Minister of Environment Nr. 51/2004 about Quality Standards of Seawater, especially suspended solid, annexed thereto.</td>
</tr>
<tr>
<td>Objective of Environmental Management Plan</td>
<td>Taking best efforts to prevent decreased seawater quality due to shallow water reclamation activities for preparing causeway construction and container yard preparation and compaction.</td>
</tr>
<tr>
<td>Environmental Management</td>
<td>Constructing rock embankment prior to reclamation to prevent reclamation material overflow.</td>
</tr>
<tr>
<td>Environmental Management Site</td>
<td>Shallow water reclamation site</td>
</tr>
</tbody>
</table>
Environmental Impact Assessment
Tanjung Perak Port Development in Lamong Bay

C. Impact on Change of Water Current Pattern and Sedimentation

- Source of Impact: Reclamation of shallow water for constructing container yard and terminal facilities
- Parameter of Impact: Increased process of sedimentation
- Objective of Environmental Management Plan: Controlling sedimentation due to shallow water reclamation activities
- Environmental Management: Dredging Sememi River estuary
- Environmental Management Site: In front of Sememi River estuary
- Environmental Management Period: When the elevation in the riverbed in the estuary increases minimally 50 cm.
- Environmental Management Institution
  - Initiator: PT. Pelabuhan Indonesia III
  - Supervisor: Surabaya City Environment Agency and Surabaya City Highway and Drainage Service

2.1.3.Construction of Pier Structure and Trestle
A. Impact on Decreased Seawater Quality

- Source of Impact: Construction of port structure and trestle
- Parameter of Impact: Decision of Minister of Environment Nr. 51/2004 about Quality Standards of Seawater, especially suspended solid, annexed thereto.
- Objective of Environmental Management Plan: Taking best effort to prevent decreased seawater quality due to construction of port structure and trestle.
- Environmental Management: Constructing main pier columns and beams and trestle with pre-cast structures, instead of on-site casting
- Environmental Management Site: Pier and trestle site.
- Environmental Management Period: During construction of pier structure and trestle
- Environmental Management Institution
  - Initiator: PT. Pelabuhan Indonesia III
2.2. OPERATION PHASE

2.2.1. Incoming and Outgoing Container Trucks

A. Impact on Decreased Ambient Air Quality

- **Source of Impact**: Incoming and outgoing container trucks
- **Parameter of Impact**: Feasibility of operated truck with reference to results of truck physical and emission tests.
- **Objective of Environmental Management Plan**: Assuring that operated container trucks qualify prevailing truck operating standards
- **Environmental Management**: Affecting feasibility standards of operated means of transportation to minimize pollution due to poor emission.
- **Environmental Management Site**: In container trucks
- **Environmental Management Period**: During Operation
- **Environmental Management Institution**:
  - **Initiator**: PT. Pelabuhan Indonesia III
  - **Supervisor**: Surabaya City Communication Service and Surabaya City Environment Service

2.2.2. Container Terminal Operation

A. Impact on Increased Community Income

- **Source of Impact**: Container terminal operation
- **Parameter of Impact**: Increased community income pre and post operation activities
- **Objective of Environmental Management Plan**: Securing that the local community gets much greater business opportunities
- **Environmental Management**: Opening greater business opportunities to the local community due to the container terminal operation, such as: food stalls.
- **Environmental Management Site**: Around project site.
- **Environmental Management Period**: During container terminal operation
- **Environmental Management Institution**:
  - **Initiator**: PT. Pelabuhan Indonesia III
  - **Supervisor**: Surabaya City Environment Service
2.2.3. Labor Recruitment

A. Impact on Increased Community Income

- Source of Impact: Labor recruitment
- Parameter of Impact: Increased community income pre and post operation activities
- Objective of Environmental Management Plan: Securing that the local community really gets greater job opportunities
- Environmental Management:
  1. Giving the same employment opportunities to the local people, especially the non-skilled ones, through the village office and sub-district office in the study area for posts as, for instance: security guards, administration clerks, porters, etc.
  2. Recruiting workers in accordance with the required specifications and competencies.

- Environmental Management Site: PT. Pelabuhan Indonesia III
- Environmental Management Period: During operation (labor recruitment)
- Environmental Management Institution:
  - Initiator: PT. Pelabuhan Indonesia III atau operator
  - Supervisor: Surabaya City Environment Service

B. Impact on Availability of Job Opportunity

- Source of Impact: Labor recruitment
- Parameter of Impact: Increased community income pre and post operation activities
- Objective of Environmental Management Plan: Securing that the local community really gets greater job opportunities
- Environmental Management:
  1. Giving the same employment opportunities to the local people, especially the non-skilled ones, through the village office and sub-district office in the study area for posts as, for instance: security guards, administration clerks, porters, etc.
  2. Coordinating with the officers in charge in Surabaya City Government, Sub-district and Village to get competent local workers.

- Environmental Management Site: Romokalisari Village and Tambak Osowilangun Village (Benowo Sub-district), Tambak Langon Village, Greges Village and Kalianak Village (Asemrowo
- Environmental Management Period: During operation (labor recruitment)
- Environmental Management Institution: 
  - Initiator: PT. Pelabuhan Indonesia III atau operator
  - Supervisor: Surabaya City Environment Service
This chapter describes the observation to significant impacts resulted from the environment estimation and evaluation as reported in Chapter 5 and Chapter 6 of the Environmental Impact Statement Documents.

3.1. CONSTRUCTION PHASE
3.1.1. Reclamtion for Preparing Road Construction
A. Impact on Increased River Runoff Surface

- Observed Significant Impacts
  - Impact Components or Parameters
  - Impact Component Indicators

- Source of Impact

- Observed Parameter

Objective of Environmental Observation Plan

- Environmental Observation Method
  - Method of Data Collection and Analysis
  - Environmental Observation Site
  - Observation Period and Frequency

- Environmental Observation Institution
  - Initiator
  - Supervisor

- Increased surface of river water runoff
- Available information related with the increased surface of river water runoff
- Reclamation for preparing road construction
- Information related with the increased surface of river water runoff
- Assuring that the available information related with the increased surface of river water runoff is already received by Bengawan Solo Management Center
- Direct Observation.
- Bengawan Solo Management Center
- Once prior construction.
- PT. Pelabuhan Indonesia III
- East Java Province Public Waterworks
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B. Impact on Decreased Seawater Quality

- Observed Significant Impacts
  - Impact Components or Parameters: Decreased seawater quality
  - Impact Component Indicators: Quality of seawater after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards

- Source of Impact: Reclamation for preparing road construction

- Observed Parameter
  - Observed Parameter: Total suspended solid with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards
  - Observed Parameter: Total suspended solid with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards

- Objective of Environmental Observation Plan
  - Objective of Environmental Observation Plan: Observing the seawater quality after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards

- Environmental Observation Method
  - Method of Data Collection and Analysis: Seawater random sampling in certain locations and laboratory analysis. 3 (three) seawater samples from each location, i.e. on surfase + 2M DPL and + 5M DPL, next they are composited into one. The collected seawater is then stored in a jerrycan for further chemical analysis. The sample testing on total suspended solid takes place in the laboratory. The total seawater samples are 10.

- Environmental Observation Site
  - Environmental Observation Site: Close to Lamong River estuary (1 point);
  - Environmental Observation Site: Close to Sememi River estuary (1 point);
  - Environmental Observation Site: Close to Branjangan River estuary (1 point);
  - Environmental Observation Site: Close to Greges Rier estuary (1 point);
  - Environmental Observation Site: Close to Anak River estuary (1 point);
  - Environmental Observation Site: Close to Krembangan River
C. Impact on Change of Water Current Pattern and Sedimentation

- **Observed Significant Impacts**
  - **Impact Components or Parameters**
  - **Source of Impact**
  - **Objective of Environmental Observation Plan**

- **Environmental Observation Method**
  - **Method of Data Collection and Analysis**
  - **Environmental Observation Site**
  - **Observation Period and Frequency**

- **Environmental Observation Institution**
  - **Initiator**
  - **Supervisor**
  - **Observation Result Reporting to**

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3.1.2. Shallow Water Reclamation for Constructing Container Yard and Terminal Facility

A. Impact on Increased River Runoff Surface

- **Observed Significant Impacts**

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- Impact Components or Parameters
  - Impact Component Indicators

- Source of Impact

- Observed Parameter

- Objective of Environmental Observation Plan

- Environmental Observation Method
  - Method of Data Collection and Analysis
  - Environmental Observation Site
  - Observation Period and Frequency

- Environmental Observation Institution
  - Initiator
  - Supervisor

- Observation Result Reporting to

B. Impact on Decreased Seawater Quality

- Observed Significant Impacts
  - Impact Components or Parameters
  - Impact Component Indicators

- Source of Impact

- Observed Parameter

- Objective of Environmental Observation Plan

- Environmental Observation Method
  - Method of Data Collection and Analysis

: Increased surface of river water runoff
: Available information related with the increased surface of river water runoff
: Reclamation of shallow water for constructing container yard and terminal facility
: Information related with the increased surface of river water runoff
: Assuring that the available information related with the increased surface of river water runoff is already received by Bengawan Solo Management Center
: Direct Observation.
: Bengawan Solo Management Center
: Once prior construction.
: PT. Pelabuhan Indonesia III
: East Java Province Public Waterworks Service, Bengawan Solo Management Center and Surabaya City Environment Agency

: Decreased seawater quality
: Quality of seawater after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards
: Reclamation of shallow water for construction of container yard and terminal facility
: Total suspended solid with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards.
: Observing the seawater quality after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards
: Seawater random sampling in certain locations and laboratory analysis.3 (three) seawater samples from each
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- Environmental Observation Site
  - Close to Lamong River estuary (1 point);
  - Close to Sememi River estuary (1 point);
  - Close to Branjangan River estuary (1 point);
  - Close to Greges Rier estuary (1 point);
  - Close to Anak River estuary (1 point);
  - Close to Krembangan River estuary (1 point);
  - Close to Trestle of PT. Terminal Petikemas Surabaya;
  - Close to connecting bridge (1 point);
  - Close to container yard (2 points);

- Observation Period and Frequency
  - Quarterly during reclamation for preparing road construction

Environmental Observation Institution
- Initiator: PT. Pelabuhan Indonesia III
- Supervisor: Surabaya City Environment Agency

C. Impact on Change of Water Current Pattern and Sedimentation
- Observed Significant Impacts: Change of water current pattern and sedimentation
- Impact Component or Parameters: Relatively significant sedimentation
- Impact Component Indicators: Reclamation of shallow water for construction of container yard and terminal facility
- Source of Impact: Increased sedimentation
- Observed Parameter: Observing the extend of sedimentation
- Objective of Environmental Observation Plan
- Environmental Observation Method
  - Method of Data Collection and Analysis: Measuring the ongoing sedimentation by sampling from the river bed by
means of bottom grabber and analyzing the data by means of Grain Size Analysis Method to find out the distribution of sediment grain diameters.

- Environmental Observation Site
  : Water area in project site in Lamong Bay

- Observation Period and Frequency
  : Once during reclamation of shallow water for constructing causeway

- Environmental Observation Institution
  - Initiator
    : P.T. Pelabuhan Indonesia III
  - Supervisor
    : Surabaya City Environment Agency
  - Observation Result Reporting to

3.1.3. Construction of Pier Structure and Trestle

A. Impact on Decreased Seawater Quality

- Observed Significant Impacts
  : Decreased seawater quality

- Impact Components or Parameters
  : Quality of seawater after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards

- Impact Component Indicators
  : Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards annexed thereto

- Source of Impact
  : Construction of pier structure and trestle

- Observed Parameter
  : Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards annexed thereto

- Objective of Environmental Observation Plan
  : Observing the seawater quality after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards annexed thereto for port waters and identifying the seawater quality management performance

- Environmental Observation Method
  - Method of Data Collection and Analysis
    : Seawater random sampling in certain locations and laboratory analysis. 3 (three) seawater samples from each location, i.e. : on surcase ± 2M DPL and ± 5M DPL, next they are composited into one. The collected seawater is then stored in a jerrycan for further chemical analysis. The sample testing in terms of smell, temperature is conducted on site while other parameters are tested in the
3.2. OPERATION PHASE

3.2.1. Labor Recruitment

A. Impact on Increased Community Income

- Observed Significant Impacts
  - Impact Components or Parameters
    - Increased community income
  - Impact Component Indicators
    - Number of local labors
  - Source of Impact
    - Labor recruitment
  - Observed Parameter
    - Average income of local labors
  - Objective of Environmental Observation Plan
    - Identifying the average income of the local people hired in the port

- Environmental Observation Method
  - Method of Data Collection and Analysis
    - Interviewing the local people hired in the port. The data is analyzed by means of descriptive statistical analysis.

- Environmental Observation Site
- Observation Period and Frequency
  - Close to Lamong River estuary (1 point);
  - Close to Sememi River estuary (1 point);
  - Close to Branjangan River estuary (1 point);
  - Close to Greges Rier estuary (1 point);
  - Close to Anak River estuary (1 point);
  - Close to Krembangan River estuary (1 point);
  - Close to Trestle of PT. Terminal Petikemas Surabaya;
  - Close to connecting bridge (1 point);
  - Close to container yard (2 points);

  - PT. Pelabuhan Indonesia III in collaboration with Surabaya City Environment Agency
  - East Java Province Environment Agency

  - Quarterly during construction

  - PT. Pelabuhan Indonesia III in collaboration with Surabaya City Environment Agency
  - East Java Province Environment Agency

  - PT. Pelabuhan Indonesia III
  - Once after 1 (one) year’s recruitment of the labor.
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- Environmental Observation Institution
  - Initiator: PT. Pelabuhan Indonesia III
  - Supervisor: Surabaya City Environment Agency and Surabaya City Manpower Service

3.2.2. Incoming and Outgoing Container Trucks
A. Impact on Decreased Ambient Air Quality
- Observed Significant Impacts
  - Impact Components or Parameters: Air quality
  - Impact Component Indicators: Change of air quality in accordance to Regulation of Governor of East Java Province, Nr. 10 Year 2009 about Ambient Air Quality Standard and Movable and Immovable Source of Emission in East Java Province.

- Source of Impact
  - Observed Parameter: 1. Certificate of emission test passing in accordance to Act Nr. 22 Year 2009 about Traffic and Highways.
  - 2. Ambient air parameter udara set forth in Regulation of Governor of East Java Province, Nr. 10 Year 2009 about Ambient Air Quality Standard and Movable and Immovable Source of Emission in East Java Province

- Objective of Environmental Observation Plan
  - Observing the change of air quality in accordance to Regulation of Governor of East Java Province, Nr. 10 Year 2009 about Ambient Air Quality Standard and Movable and Immovable Source of Emission in East Java Province and identifying the air quality management performance.

- Environmental Observation Method
  - Method of Data Collection and Analysis: In situ direct observation to ambient air sampling in determined points and further sampling analysis in laboratory. The results of laboratory analysis are compared to the parameters set forth in the aforementioned standards.

- Environmental Observation Site
  - Close to the port gate and community dwelling or settlement area

- Observation Period and Frequency
  - Quarterly during operation

- Environmental Observation Institution
  - Initiator: PT. Pelabuhan Indonesia III.
  - Supervisor: Surabaya City Environment Agency
B. Impact on Increased Community Income

- Observed Significant Impacts
  - Impact Components or Parameters
  - Impact Component Indicators

- Source of Impact
- Observed Parameter
- Objective of Environmental Observation Plan

- Environmental Observation Method
  - Method of Data Collection and Analysis
  - Environmental Observation Site

- Observation Period and Frequency
- Environmental Observation Institution
  - Initiator
  - Supervisor
  - Observation Result Reporting to

: Community income
: Opening business opportunities surround the port.
: Container terminal operation
: Number of business places
: Observing the business places around the port
: Collecting data on business development around the port
: Kalianak Village, Greges Village, Tambak Langon Village (Asemrowo Sub-district), Morokrembangan Village (Morokrembangan Sub-district), Romokalisari Village and Tambak Osowilangon Village (Benowo Sub-district)
: During operation
: PT. Pelabuhan Indonesia III in collaboration with relevant Manpower Service, Sub-district Administrator and Village Administrator
: Surabaya City Environment Agency