Environmental Observation Plan (EOP)

Tanjung Perak Port Development in Lamong Bay

2010
Based on the content of Environmental Observation Plan for supporting Tanjung Perak Port Development in Lamong Bay, Surabaya City, East Java Province by our company, I, the undersigned:

Name: HUSEIN LATIEF
Designation: Director of Commerce and Business Development

acting for and on behalf of PT. Pelabuhan Indonesia III (Persero) as the person in charge of the implementation of the Environmental Observation Plan for:

Project: Tanjung Perak Port Development in Lamong Bay, Surabaya City, East Java Province
Name of Company: PT. Pelabuhan Indonesia III (Persero)
Company Status: State-Owned Company
Head Office Address: Jl. Perak Timur 610 Surabaya

hereby declares that:

1. We are willing to implement the environmental management programs prepared based on the Environmental Impact Statement affected to our business as represented in our Environmental Observation Plan as recorded in our Environmental Observation Plan Documents, and submit the relevant reports on regular basis to the competent authorities pursuant to the prevailing jurisprudence;

2. During the course of the management of the environmental impacts arising from our activities specified in the Environmental Observation Plan Documents, we shall be subject to be supervised and monitored by the lawfully competent and warranted authorities pursuant to the prevailing jurisprudence;

3. In case we fail to diligently manage the activities in accordance to the Environmental Observation Plan Documents as stated in the aforementioned dictum 1, we shall be accountable to satisfy all arising obligations from the losses and damages pursuant to the prevailing jurisprudence;

4. In case we fail to diligently satisfy the provisions set forth in the Environmental Observation Plan Documents, we shall take all arising legal sanctions;

5. In case of modifications in the activities, we are prepared to renew/revise the Environmental Observation Plan Documents.

Thus truly declared and to be used when required

Surabaya, .. January 2011
Initiator
Board of Directors of PT. Pelabuhan Indonesia III (Persero)
Director of Commerce and Business Development

Duty-stamped, Signed and Sealed

HUSEIN LATIEF
In attempt to secure sustainable development and meeting the prevailing laws and jurisprudence in Indonesia, The Business Plans and/or Activities for Tanjung Perak Port Development in Lamong Bay, Surabaya City, East Java Province, by PT. Pelabuhan Indonesia III (Persero), it is to be provided with Environmental Observation Plan Documents that pertain to be a part of Environmental Impact Assessment.

In the Environmental Impact Statement Documents, the activities potential to lead to impacts and the impacted environmental components have been thoroughly reviewed. With reference to the review, the project initiator will diligently take a set of preventive, anticipative and control steps to minimize the negative impacts and maximize the positive ones.

This Environmental Observation Plan describes the arising impacts, observed parameter, objective of environmental observation plan, environmental observation method, covering data collection and analysis method, environmental observation site, observation period and frequency, as well as institutions involved in the environmental observation.

In view of the completion of Environmental Observation Plan, PT. Pelabuhan Indonesia III (Persero) presents the greatest appreciation to any and all parties contributing to the process of preparation of this document and application of the Environmental Impact Assessment in order to be able to use it properly.

Surabaya, .. January 2011
Initiator
Board of Directors of PT. Pelabuhan Indonesia III (Persero)
Director of Commerce and Business Development

Signed and Sealed

HUSEIN LATIEF

Approved
Central Environmental Impact Assessment Evaluation Commission
Number : 256 Year 2010
Date : 05 October 2010
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BIBLIOGRAPHY

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Sitemap of Environmental Observation Plan
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 by reclaiming the shallow waters 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. The increasing container traffic at present is almost over capacity.

With reference to the Regulation of State Minister of Environment Nr. 11 Year 2006 dated 02 October 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.
Based on the results of study as recorded in the Environmental Impact Statement, it is estimated the Tanjung Perak Port development in Lamong Bay will bring both positive and negative impacts to the surrounding environment of the project. The areas predicted to be impacted by the project cover Romokalisari Village, Tambak Osowilangun Village, Tambak Langon Village, Greges Village and Morokrembangan Village, all in Surabaya City. The impacts arising from the project activities will take place in pre-construction, during construction and operation. The impacts are to be managed in accordance with the Environmental Management Plan. In order to secure the effectiveness of the management and the favorable environmental conditions when the activities proceed, it is certainly necessary to prepare Environmental Observation Plan.
1.2. **Goal and Objective of Environmental Observation Plan**

1.2.1. **Goal of Environmental Observation Plan**

The preparation of Environmental Plan is supposed to provide feasible and effective environmental observation steps for both the initiator and institutions in charge of monitoring and reporting in order to secure sustainably favorable environmental conditions.

1.2.2. **Objective of Environmental Observation Plan**

- Providing guides to implementation of environmental observation activities in the line with:
  - Source of Impact
  - Observed Significant Impacts
  - Observation Objective
  - Observed Parameter and Observation Site
  - Observation Period
  - Observation Execution

1.3. **Jurisprudences**

The Environmental Impact Assessment is applied with reference to environmental jurisprudences and integrated national policies. The jurisprudences related with the Environmental Impact Assessment are, inter alia:

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<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>
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<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>
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<td>▪ Adopted as reference in determining activity site</td>
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<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>
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<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>
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<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>
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<td>• Indonesian Act Nr. 32 Year 2009 about Environment Protection and Management.</td>
<td>• Adopted as reference in environmental management for activity planning</td>
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<td>• Adopted as reference related with hypothetica significant impact in water bird habitat decrease</td>
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<td>• State Regulation Nr. 27 Year 1999 about Environmental Impact Assessment.</td>
<td>• Adopted as basis in preparing environmental impact assessment</td>
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<td>• State Regulation Nr. 41 Year 1999 about Air Pollution Control</td>
<td>• Adopted as reference for controlling air pollution</td>
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<td>• State Regulation Nr. 82 Year 1999 about Water and Sea Transportation</td>
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<td>• State Regulation Nr. 85 Year 1999 about : Amendment to State Regulation Nr. 18 Year 1999 about Pollution and/or Sea Destruction Control</td>
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<td>• State Regulation Nr. 74 Year 2001 about Hazardous and Poisonous Materials</td>
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<td>• State Regulation Nr. 82 Year 2001 About Water Quality Management and Water Pollution Control</td>
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<td>• State Regulation Nr. 51 Year 2002 about Shipping</td>
<td>• Adopted as reference in operation activities</td>
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<td>• State Regulation Nr. 16 Year 2004 about Area Utilization</td>
<td>• Adopted as reference in determining proper area utilization and development</td>
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<td>• State Regulation Nr. 38 Year 2007 about Divisions of Authorities among National Government, Provincial Government and City/Regency Government</td>
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<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>
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<td>• State Regulation Nr. 26 Year 2008 about National Spatial Planning</td>
<td>• Adopted as reference in determining proper area utilization and development</td>
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### Decision of President
- 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).

### Considerations
- Adopted as reference in operation activities
- Adopted as reference in operation activities and environmental management

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### Regulations of State Minister of Environment
- Regulation of State Minister of Environment Nr. 08 Year 2006 about Guides to Environmental Impact Preparation
- Regulation of State Minister of Environment Nr. 11 Year 2006 about Business Plans and/or Activities to be Provided with Environmental Impact Assessment.
- Regulation of State Minister of Environment Nr. 05 Year 2009 about Waste Management in Port

### Considerations
- Adopted as reference in preparing Environmental Impact Assessment
- Adopted as reference in preparing Environmental Impact Assessment
- Adopted as reference in hazardous and poisonous waste handling

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### Regulations of Minister of Communication
- Regulation of Minister of Communication Nr. KM 4 Year 2005 about Prevention of Water Pollution from Vessels
- Regulation of Minister of Communication Nr. 7 Year 2005 about Shipping Navigation Aids
- Regulation of Minister of Communication Nr Km 14 Year 2006 about Surface Traffic Engineering and Management

### Considerations
- Adopted as reference for pollution prevention and environmental observation
- Adopted as reference in determining seawater transportation
- Adopted as reference in improving transportation network performance

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### Decisions of Minister of Communication
- Decision of Minister of Communication Nr. KM 215 Year 1987 about Waste Storage Provision and Vessel
- Decision of Minister of Communication Nr. KM 286 Year 2002 about Mandatory Piloting in Water Areas
- Decision of Minister of Communication Nr. KM 54 Year 2006 about Pelabuhan Tanjung Perak Port Master Plan

### Considerations
- Adopted as reference for pollution prevention and environmental observation
- Adopted as reference in determining seawater transportation
- Adopted as reference in preparing Environmental Impact Assessment

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### Decisions of State Minister of Environment
- Decision of State Minister of Environment Nr. KEP 48/MENLH/11/1996 about Noise Standards

### Considerations
- Adopted as reference in evaluating degree of noise in an area
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<th>Decision of State Minister of Environment Nr. 54/MENLH/10/1997 about Air Pollution Index Standards.</th>
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<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>
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<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>
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**Decision of Minister of Environemnt and Head of Environmental Impact Management Agency Considerations**

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<th>Decision of Minister of Environemnt and Head of Environmental Impact Management Agency Keputusan Nr. Kep. 056 Year 1994 about Guides to Significant Impact Measurement.</th>
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<td>Decision of Minister of Environemnt and Head of Environmental Impact Management Agency Keputusan Nr. KEP. 299/11/Tahun1996 about Technical Guides to Social Social Aspects in Preparing Environmental Impact Assessment</td>
<td>Adopted as guides in preparing environmental impact assessment in term of social aspects</td>
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<td>Decision of Minister of Environemnt and Head of Environmental Impact Management Agency Keputusan Nr. Kep.124/12/1997 about Guides to Review on Community Health Aspect in Preparing Environmental Impact Assessment.</td>
<td>Adopted as guides in reviewing health aspects in environmental impact assessment</td>
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<td>Decision of Minister of Environemnt and Head of Environmental Impact Management Agency Keputusan Nr. 08 Year 2000 about Community Involvement and Information Openess in Environmental Impact Assessment Proces.</td>
<td>Adopted as reference in community involvement process in preparing environmental impact assessment</td>
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**East Java Provincial Regulations Considerations**

| East Java Provincial Regulation Nr. 02 Year 2006 about East Java Provincial Spatial Plan | Adopted as reference in spatial development |
| Surabaya City Regulation Nr. 3 Year 2007 about Surabaya City Spatial Plan | Adopted as reference in planning main facility constructions in Surabaya City |
1.4. Benefits of Environmental Observation

1.4.1. Benefits to Initiator

- As a guide and direction of related institutions in attempt to observe the environment in the studied area.
- To early identify environmental changes due to improper environmental management steps.

1.4.2. Benefits to Related Institutions

As a feedback for correcting project management policies both at present and in the future.

1.4.3. Benefits to Government and Community

Realizing definitely eco-friendly development.
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.

2.1. CONSTRUCTION PHASE

2.1.1. Reclamation 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

- Impact Component Indicators
  - 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

- Objective of Environmental Observation Plan
  - Assuring that the available information related with the increased surface of river water runoff is already received by Bengawan Solo Management Center

- Method of Data Collection and Analysis
  - Direct Observation.

- Environmental Observation Site
  - Bengawan Solo Management Center

- Observation Period and Frequency
  - Once prior construction.
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
  : Total suspended solid with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards.

- 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 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 on total suspended solid takes place in the laboratory. The total seawater samples are 10.

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

- Observations:
  - 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);

- 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 for preparing road construction
  - Source of Impact: Increased sedimentation
  - Observed Parameter: Observing the extend of sedimentation

- Environmental Observation Method: 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: PT. Pelabuhan Indonesia III
  - Supervisor: Surabaya City Environment Agency
### 2.1.2. Shallow Water Reclamtion for Constructing Container Yard and Terminal Facility

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

- **Observed Significant Impacts**
  - Impact Components or Parameters: Increased surface of river water runoff
  - Impact Component Indicators: Available information related with the increased surface of river water runoff

- **Source of Impact**
  - Reclamation of shallow water for constructing container yard and terminal facility

- **Observed Parameter**
  - Information related with the increased surface of river water runoff

- **Objective of Environmental Observation Plan**
  - Assuring that the available information related with the increased surface of river water runoff is already received by Bengawan Solo Management Center

- **Environmental Observation Method**
  - Method of Data Collection and Analysis: Direct Observation.
  - Environmental Observation Site: Bengawan Solo Management Center
  - Observation Period and Frequency: Once prior construction.

- **Environmental Observation Institution**
  - Initiator: PT. Pelabuhan Indonesia III
  - Supervisor: East Java Province Public Waterworks Service, Bengawan Solo Management Center and Surabaya City Environment Agency

#### 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 of shallow water for construction of container yard and terminal facility

- **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**
  - 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 Plan

Environmental Observation Method
- Method of Data Collection and Analysis: Seawater random sampling in certain locations and laboratory analysis. (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 on total suspended solid takes place in the laboratory. The total seawater samples are 10.

- 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 River 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 Components 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 : PT. Pelabuhan Indonesia III
- Supervisor : Surabaya City Environment Agency

2.1.3. 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

- 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 : 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 laboratory. The total seawater samples are 10.
2.2. OPERATION PHASE

2.2.1. Labor Recruitment

A. 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

: Close to Lamong River estuary (1 point);
  - Close to Sememi River estuary (1 point);
  - Close to Branjangan River estuary (1 point);
  - Close to Greges River 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);

: Quarterly during construction

: PT. Pelabuhan Indonesia III in collaboration with Surabaya City Environment Agency

: East Java Province Environment Agency


: Increased community income
  - Number of local labors
  - Labor recruitment
  - Average income of local labors
  - Identifying the average income of the local people hired in the port

: Interviewing the local people hired in the port. The data is analyzed by means of descriptive statistical analysis.

: PT. Pelabuhan Indonesia III
  - Once after 1 (one) year’s recruitment of the labor.

: PT. Pelabuhan Indonesia III
  - Surabaya City Environment Agency and Surabaya City Manpower Service
2.2.2. Incoming and Outgoing Container Trucks

A. Impact on Decreased Ambient Air 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

- Environmental Observation Site
- Observation Period and Frequency

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

: Air quality
: 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.

: Incoming and outgoing container trucks
: 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

: 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.

: 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.

: Close to the port gate and community dwelling or settlement area
: Quarterly during operation

: PT. Pelabuhan Indonesia III.
: Surabaya City Environment Agency
B. Impact on Increased Community Income

- Observed Significant Impacts
  - Impact Components or Parameters: Community income
  - Impact Component Indicators: Opening business opportunities surround the port.

- Source of Impact: Container terminal operation
- Observed Parameter: Number of business places
- Objective of Environmental Observation Plan: Observing the business places around the port

- Environmental Observation Method
  - Method of Data Collection and Analysis: Collecting data on business development around the port
  - Environmental Observation Site: Kalianak Village, Greges Village, Tambak Langon Village (Asemrowo Sub-district), Morokrembangan Village (Morokrembangan Sub-district), Romokalisari Village and Tambak Osowilangon Village (Benowo Sub-district)

- Observation Period and Frequency: During operation
- Environmental Observation Institution
  - Initiator: PT. Pelabuhan Indonesia III in collaboration with relevant Manpower Service, Sub-district Administrator and Village Administrator
  - Supervisor: Surabaya City Environment Agency
Table 2.1. – Matrix of Summary of Environmental Observation Plan for Development of Surabaya Container Terminal in Lamong Bay

CONSTRUCTION PHASE

<table>
<thead>
<tr>
<th>Observed Significant Impact</th>
<th>Source of Impact</th>
<th>Source of Parameter</th>
<th>Objective of Environmental Observation Plan</th>
<th>Method of Data Collection and Analysis</th>
<th>Environmental Observation Site</th>
<th>Observation Period and Frequency</th>
<th>Environmental Observation Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on Increased River Runoff Surface</td>
<td>Available information related with the increased surface of river water runoff</td>
<td>Reclamation for preparing road construction</td>
<td>Information related with the increased surface of river water runoff</td>
<td>Assuring that the available information related with the increased surface of river water runoff is already received by Bengawan Solo Management Center</td>
<td>Direct Observation. Bengawan Solo Management Center</td>
<td>Once prior construction.</td>
<td>PT. Pelabuhan Indonesia III East Java Province Public Waterworks Service, Bengawan Solo Management Center and Surabaya City Environment Agency</td>
</tr>
<tr>
<td>Decreased seawater quality</td>
<td>Quality of seawater after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards</td>
<td>Reclamation for preparing road construction</td>
<td>Total suspended solid with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards</td>
<td>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</td>
<td>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 on total suspended solid takes place in the laboratory. The total seawater samples are 10.</td>
<td>Quarterly during reclamation for preparing road construction</td>
<td>PT. Pelabuhan Indonesia III Surabaya City Environment Agency</td>
</tr>
<tr>
<td>Observed Significant Impact</td>
<td>Source of Impact</td>
<td>Observed Parameter</td>
<td>Objective of Environmental Observation Plan</td>
<td>Method of Data Collection and Analysis</td>
<td>Environmental Observation Site</td>
<td>Observation Period and Frequency</td>
<td>Environmental Observation Institution</td>
</tr>
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<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Change of water current pattern and sedimentation</td>
<td>Relatively significant sedimentation</td>
<td>Increased sedimentation</td>
<td>Observing the extend of sedimentation</td>
<td>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.</td>
<td>Water area in project site in Lamong Bay</td>
<td>Once during reclamation of shallow water for constructing causeway</td>
<td>PT. Pelabuhan Indonesia III Surabaya City Environment Agency</td>
</tr>
<tr>
<td>Increased surface of river water runoff</td>
<td>Available information related with the increased surface of river water runoff</td>
<td>Information related with the increased surface of river water runoff</td>
<td>Assuring that the available information related with the increased surface of river water runoff is already received by Bengawan Solo Management Center</td>
<td>Direct Observation.</td>
<td>Bengawan Solo Management Center</td>
<td>Once prior construction.</td>
<td>PT. Pelabuhan Indonesia III East Java Province Public Waterworks Service, Bengawan Solo Management Center and Surabaya City Environment Agency</td>
</tr>
<tr>
<td>Observed Significant Impact</td>
<td>Impact Component or Parameter</td>
<td>Source of Impact</td>
<td>Observed Parameter</td>
<td>Objective of Environmental Observation Plan</td>
<td>Method of Data Collection and Analysis</td>
<td>Environmental Observation Site</td>
<td>Observation Period and Frequency</td>
</tr>
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</tr>
<tr>
<td>Decreased seawater quality</td>
<td>Quality of seawater after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards</td>
<td>Reclamation of shallow water for construction of container yard and terminal facility</td>
<td>Total suspended solid with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards</td>
<td>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</td>
<td>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 on total suspended solid takes place in the laboratory. The total seawater samples are 10.</td>
<td>-Close to Lamong River estuary (1 point); -Close to Sememi River estuary (1 point); -Close to Branjangan River estuary (1 point); -Close to Greges River 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);</td>
<td>Quarterly during reclamation for preparing road construction</td>
</tr>
</tbody>
</table>

<p>| Change of water current pattern and sedimentation | Relatively significant sedimentation | Reclamation of shallow water for construction of container yard and terminal facility | Increased sedimentation | Observing the extend of sedimentation | 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. | Water area in project site in Lamong Bay | Once during reclamation of shallow water for constructing causeway | P.T. Pelabuhan Indonesia III Surabaya City Environment Agency | East Java Province Public Waterworks Service, Bengawan Solo Management Center and Surabaya City Environment Agency |</p>
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<th>Observed Significant Impact</th>
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<th>Initiator</th>
<th>Supervisor</th>
<th>Observation Result Reporting to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased seawater quality</td>
<td>Quality of seawater after mixed with soil/sand spills with reference to Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards</td>
<td>Construction of pier structure and trestle</td>
<td>Decision of Minister of Environment Nr. 51/2004 about Seawater Quality Standards annexed thereto</td>
<td>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</td>
<td>Seawater random sampling in certain locations and laboratory analysis. 3 (three) seawater samples from each location, i.e.: on surcase ( \pm 2 ) M DPL and ( \pm 5 ) M 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 laboratory. The total seawater samples are 10.</td>
<td>Quarterly during construction</td>
<td>PT. Pelabuhan Indonesia III in collaboration with Surabaya City Environment Agency</td>
<td>East Java Province Environment Agency</td>
<td>East Java Province Environment Agency</td>
<td></td>
</tr>
</tbody>
</table>
Table 2.1. – Matrix of Summary of Environmental Observation Plan for Development of Surabaya Container Terminal in Lamong Bay (Cont.)

<table>
<thead>
<tr>
<th>Operation Phase</th>
<th>Observed Significant Impact</th>
<th>Source of Impact</th>
<th>Observed Parameter</th>
<th>Objective of Environmental Observation Plan</th>
<th>Method of Data Collection and Analysis</th>
<th>Environmental Observation Site</th>
<th>Observation Period and Frequency</th>
<th>Environmental Observation Institution</th>
<th>Initiator</th>
<th>Supervisor</th>
<th>Observation Result Reporting to</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increased community income</strong></td>
<td>Number of local labors</td>
<td>Labor recruitment</td>
<td>Average income of local labors</td>
<td>Identifying the average income of the local people hired in the port</td>
<td>Interviewing the local people hired in the port. The data is analyzed by means of descriptive statistical analysis.</td>
<td>PT. Pelabuhan Indonesia III</td>
<td>Once after 1 (one) year’s recruitment of the labor.</td>
<td>PT. Pelabuhan Indonesia III, Surabaya City Environment Agency, East Java Province Environment Agency, Ministry of Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air quality</strong></td>
<td>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 Emmission in East Java Province</td>
<td>Incoming and outgoing container trucks</td>
<td>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 Emmission in East Java Province</td>
<td>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 Emmission in East Java Province and identifying the air quality management performance.</td>
<td>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.</td>
<td>Close to the port gate and community dwelling or settlement area</td>
<td>Quarterly during operation</td>
<td>PT. Pelabuhan Indonesia III, Surabaya City Environment Agency</td>
<td>Surabaya City Environment Agency, East Java Province Environment Agency, Ministry of Environment</td>
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<td></td>
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</tbody>
</table>
Table 2.1. – Matrix of Summary of Environmental Observation Plan for Development of Surabaya Container Terminal in Lamong Bay (Cont.)

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<thead>
<tr>
<th>Observed Significant Impact</th>
<th>Source of Impact</th>
<th>Observed Parameter</th>
<th>Objective of Environmental Observation Plan</th>
<th>Method of Data Collection and Analysis</th>
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<th>Observation Period and Frequency</th>
<th>Environmental Observation Institution</th>
<th>Initiator</th>
<th>Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community income</td>
<td>Opening business opportunities surround the port.</td>
<td>Container terminal operation</td>
<td>Number of business places</td>
<td>Observing the business places around the port</td>
<td>Collecting data on business development around the port</td>
<td>Kalianak Village, Greges Village, Tambak Langon Village (Asemrowo Sub-district), Morokrembangan Village (Morokrembangan Sub-district), Romokalisari Village and Tambak Osowilangon Village (Benowo Sub-district)</td>
<td>During operation</td>
<td>PT. Pelabuhan Indonesia III in collaboration with relevant Manpower Service, Sub-district Administrator and Village Administrator</td>
<td>Surabaya City Environment Agency</td>
</tr>
</tbody>
</table>
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User Manual SMS
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ENVIRONMENTAL OBSERVATION PLAN (EOP)
Environmental Impact Assessment – Tanjung Perak Port Development in Lamong Bay

Figure 2
Observation Point of Reclamation for Preparing Road Construction
Source: DIGITAL INDONESIAN MAP YEAR 1999
Figure 3: Observation Points of Reclamation for Preparing Road Construction

Remarks → Observation Point of Reclamation for Preparing Road Construction

Source: DIGITAL INDONESIAN MAP YEAR 1999
Environmental Impact Assessment – Tanjung Perak Port Development in Lamong Bay

Figure 4
Observation Point of Increased River Runoff Surface
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ENVIRONMENTAL OBSERVATION PLAN (EOP)
Environmental Impact Assessment – Tanjung Perak Port Development in Lamong Bay

Figure 5
Observation Point of Shallow Water Reclamation for Constructing Container Yard and Terminal Facility

Source: DIGITAL INDONESIAN MAP YEAR 1999

Remarks → Observation Point of Shallow Water Reclamation for Constructing Container Yard and Terminal Facility
Figure 6
Observation Point of Shallow Water Reclamation for Constructing Container Yard and Terminal Facility

Observation Point of Shallow Water Reclamation for Constructing Container Yard and Terminal Facility

Remarks →黄色：Observation Point of Shallow Water Reclamation for Constructing Container Yard and Terminal Facility

图6 观察点：浅水域回填用于建设集装箱场和终端设施

图6 观察点：浅水域回填用于建设集装箱场和终端设施
ANNEXURE
ENVIRONMENTAL OBSERVATION PLAN (EOP)
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ANNEXURE
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Environmental Impact Assessment – Tanjung Perak Port Development in Lamong Bay

Source: DIGITAL INDONESIAN MAP YEAR 1999

Figure 8
Observation Point of Decreased Ambient Air Quality

Remarks → Observation Point of Decreased Ambient Air Quality

Figures 8
Observation Point of Decreased Ambient Air Quality
ANNEXURE
ENVIRONMENTAL OBSERVATION PLAN (EOP)
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Remarks → Observation Point of Increased Community Income

Figure 9
Observation Point of Increased Community Income

Source:
DIGITAL INDONESIAN MAP YEAR 1999
ENVIRONMENTAL OBSERVATION PLAN (EOP)
Environmental Impact Assessment – Tanjung Perak Port Development in Lamong Bay

Remarks →
Observation Point of Increased Community Income

Figure 10
Observation Point of Increased Community Income

Source:
DIGITAL INDONESIAN MAP YEAR 1999