JUFMP PHASE 1

Environmental and Social Management

Supplementary Report

SEPTEMBER 2011
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**Glossary**

**Institutional – Functional English names**
- BBWS – CC: Regional Office for the Ciliwung-Cisadane River Basin (Balai Besar Wilayah Sungai Ciliwung-Cisadane)
- DKI BPLHD: Environmental Management Agency of Jakarta Provincial Government
- DGCK: Directorate General Human Settlements, Ministry of Public Works
- DGWR: Directorate General Water Resources, Ministry of Public Works
- DKI Jakarta: Jakarta Provincial Government
- PMU: Project Management Unit
- PIU: Project Implementation Unit

**Environmental documentation:**
- AMDAL: Environmental Assessment (Analisis Mengenai Dampak Lingkungan, AMDAL, it includes ANDAL plus RKL / RPL)
- ANDAL: Environmental Impact Assessment/Statement (Analisis Dampak Lingkungan, ANDAL)
- RKL: Environmental Management Plan (Rencana Pengelolaan Lingkungan, RKL)
- RPL: Environmental Monitoring Plan (Rencana Pemantauan Lingkungan, RPL)

Note: Under Indonesian law, Resettlement Plan (RP) is not part of AMDAL documents; such Plans are prepared separately and are the responsibility of the local government. For JUFMP this is the Jakarta provincial government - DKI Jakarta.

**Project specific terminology**
- JUFMP: Jakarta Urgent Flood Mitigation Project. [in various project documents, used synonymously with 'Jakarta Emergency Dredging Initiative (JEDI)']
- Phase 1: Set of project sites for initial implementation of overall JUFMP. The Phase 1 sites were chosen because of their critical importance with respect to flood relief, and also because resettlement will not be required. A single AMDAL has been prepared for this set of Phase 1 activities.
- Phase 2: The remainder of project sites to be undertaken under JUFMP
- RPF: Resettlement Policy Framework; a policy document to be followed by JUFMP for resettlement activities associated with the project. There is no resettlement for Phase 1 project sites. The RPF is based on World Bank policy / practice and Indonesian law.
- Project site: Identified individual components of JUFMP; either a defined length of drain/river/floodway, or a defined size of waduk (reservoir/flood retention pond). Engineering designs have been based on each site; AMDAL preparation has been or will be for individual project site.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
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<tr>
<td>Construction Contractor</td>
<td>The Contractor whose contract under PIU will undertake dredging, embankment works, dredge material transport and associated activities for construction of JUFMP.</td>
</tr>
<tr>
<td>Contractor Detailed ESMP</td>
<td>An Environmental and Social Management Plan (ESMP) to be prepared on award of Contract by the Construction Contractor with detailed information on ESM practices to be followed. This must be based on the Construction Contract conditions, the AMDAL, this Supplementary Report, and other reports referred to in bidding documents. It must also follow all relevant laws and regulations. Community consultation prior to submission of the ESMP for Supervision Consultant formal approval is mandated.</td>
</tr>
<tr>
<td>Contractor ESM Plan</td>
<td>Generic term used to include both the “Contractor General ESMP” and the “Contractor Detailed ESM Plan”.</td>
</tr>
<tr>
<td>Contractor Preliminary ESMP</td>
<td>An ESM Plan to be prepared as part of the Technical Bid. It will include similar contents as per Contractor Detailed ESM, but to a lesser degree of detail. Community consultation is “recommended” as part of preparation.</td>
</tr>
<tr>
<td>ESM</td>
<td>Environmental and Social Management (includes environmental and social monitoring as appropriate)</td>
</tr>
<tr>
<td>Supervision Consultant</td>
<td>Consultant under contract to PMU. The Supervision Consultant will undertake day-to-day supervision of Construction Contracts – the role normally identified as “Engineer” (as principal’s representative). The Supervision Consultant will also have a substantive role in environmental and social management and monitoring, with main focus on Construction Contractor’s ESM but also including specific duties in relation to public communication / grievances, to resettlement (for some of the Phase 2 site activities) and to monitoring and reporting to DKI BPLHD on behalf of the project proponents (i.e. PIUs).</td>
</tr>
</tbody>
</table>
Summary

The AMDAL for the Phase 1 sites of the Jakarta Urgent Flood Mitigation Project (JUFMP) was prepared in late 2009 and received approval from the DKI BPLHD / AMDAL Commission on 30 March 2010. The purpose of this supplementary report on environmental and social management for JUFMP Phase 1 activities is to: (i) update the AMDAL as project preparation has continued since the original AMDAL was approved, and (ii) following World Bank review of the original AMDAL, to ensure additional concerns are addressed for compliance with the World Bank’s own Environmental Assessment OP 4.01.

Institutional arrangements are based on the Project Management Unit (PMU) representing the combined interests of the three PIUs that are “owners” / managers of JUFMP waterways and waduks. Through the Project Implementation Unit (PIU), contracts will be entered into with Construction Contractors for dredging and transport of JUFMP dredged material, construction and / or rehabilitation of some embankments and associated activities. There will be an additional contract between PMU and a Supervision Consultant (SC) who will have the dual and integrated role of “Engineer” supervising the Construction Contractors and of implementing significant environmental and social management and monitoring on behalf of the PMU and PIUs.

An approach to follow international standards to construction contracting has been adopted. International standard is based on the World Bank General and Specific Conditions of Contract, detailed designs specifying required works, preparation of Preliminary Contractor Work Plans by the bidders, then Detailed Work Plan by the successful contractor. Contractor-required environmental and social management (ESM) will follow this approach, with required Contractor Preliminary ESM Plans and then Contractor Detailed ESM Plans at bidding and after contract award. These Contractor ESM Plans are required to comply with the AMDAL, this supplementary report, other ESM documentation that forms part of the tendering package, and all local laws and regulations. The Contractor Detailed ESM Plan must be informed by specified contractor-community consultation. The ESMP’s are adjunct to and must integrate with the Work Plans.

Additional community consultations and field studies since the Phase 1 AMDAL approval reinforce the findings of the Phase 1 AMDAL activity. Environmental and social issues are closely intertwined with community perception of and interaction with the project. Several prevailing baseline conditions (e.g. noise, certain elements of air and water quality) are already above local standards. Traffic congestion is well recognized in Jakarta and while there are local regulations in place in relation to traffic issues, some aspects, especially restricting heavy transport to night-time activity reduces congestion at the city level.

There are obvious follow-on effects at the community level where the dredging and truck loading will take place. Community concerns persist about “proper implementation of environmental and social safeguards”. Additional detailed sediment quality monitoring at the Phase 2 sites reinforces the earlier findings that no dredged material that is classified as hazardous waste (locally termed as B3 (Bahan Berbahaya dan Beracun) waste) as per Indonesian legislation has been identified within the Jakarta waterways and waduks. The health assessment identifies no concerns, and there are no land use concerns of using appropriate standards (and considering the proposed development) of the disposal site at the Ancol Confined Disposal Facility (Ancol CDF). The amount of solid waste that would be removed from the dredged material and transported to the Bantar Gebang Landfill, Bekasi is about 95 000 m$^3$ (Phase 1 and Phase 2) of an estimated total 3.4 million m$^3$ of dredged material to be dredged and transported to Ancol CDF.

The community repeatedly expressed the need for flood reduction from the JUFMP project and accepted that there will be short term disturbance to the communities to achieve these objectives.
However, communities also requested meaningful consultations and that environmental and social performance of the project be improved from those experienced in other past projects.

Based on this assessment, a supplementary environmental management plan (EMP) is presented in this supplementary report. This complements the ANDAL, RKL and RPL and focuses mostly on the management and monitoring of environmental and social issues during the construction period. Responsibilities aligned with current institutional arrangements are simplified. Significant attention is given to community consultation and to developing agreements between the Construction Contractor and communities on issues such as noise and local traffic management where there will be unavoidable disturbances. Where mitigation is clearly feasible such as safety, preventing dredge material spillage and dust, the EMP and other contract documentation requires such mitigation to be implemented, with authority of the Supervision Consultant (SC) to require immediate rectification by the Construction Contractor or bringing-in of third parties. In line with the contracting approach, many costs are to be incorporated into unit rates for dredging and for transport of the dredged material. Specific line item costs are identified and possible costs given for the following main items: 1) Contractor community consultation meetings ($5000); 2) Supervision Consultant (SC) sediment quality monitoring to meet DKI BPLHD requirements ($15 - 30,000 – plus provisional sum for special management in the unlikely event that hazardous material is subsequently identified); 3) Setting-up and operating public information and complaint centres at every project site by Supervision Consultant ($50,000 plus). Actual costs will depend on bids submitted for tender.
1 Introduction

1.1 Context

1. JUFMP has been in preparation after one of the most severe floods that inundated Jakarta in February 2007. JUFMP involves dredging of accumulated sediment deposition in 11 of the main drains and 4 waduks (retention ponds) within the Jakarta urban area and transporting the dredged material to an existing and AMDAL-approved disposal site termed the Ancol Confined Disposal Facility (CDF).

2. A set of project sites were chosen as the initial Phase 1 works, in part because of the urgent need to mitigate floods and because there would be no involuntary resettlement at these sites. The Phase 1 AMDAL was submitted to the Environmental Management Agency of the Jakarta Provincial Government (DKI BPLHD) in December 2009, updated and resubmitted in February 2010, and the full environmental approval to proceed was notified by DKI BPLHD letter dated 30 March 2010 after consideration by the AMDAL Commission in accordance with Government of Indonesia (GOI) requirements.

3. Since March 2010, there have been additional activities that will influence details of JUFMP Phase 1 environmental and social management:
   - JUFMP project management and institutional arrangements have become much more defined.
   - The JUFMP project descriptions for Phase 1 have been more refined as detailed design has been undertaken.
   - Under a separate contract with the JUFMP Project Management Unit (PMU) a local consultancy (PPA) with international input is working on the environmental and social aspects of Phase 2 sites, with a focus on closely aligning and integrating these with Phase 1 aspects.

1.2 Purpose and scope of Supplementary Report

4. This supplementary report identifies how activities since the Phase 1 AMDAL approval could influence the environmental and social management of the JUFMP Phase 1 project activities. In particular the report addresses:
   - The various alternatives considered and the rationale behind the choice of the preferred set of alternatives (Section 2)
   - Institutional and contracting arrangements (Section 3)
   - Detailed design implications (Section 4)
   - Findings from on-going environmental studies (Section 5)
   - The environmental assessment and management as presented in the Phase 1 AMDAL, which based on proposed interventions, determines whether any changes may be required (Section 6). Following from this a supplementary environmental management and monitoring plan to complement the Phase 1 AMDAL is presented in Appendix 3.

5. It is important to emphasise that while there have been some slight changes to the physical limits of JUFMP Phase 1 project activities, no resettlement is required for these Phase 1 activity. The Phase 1 and 2 project activities are listed in Table 1-1 below.
**Table 1-1 Description of Floodways, Canals and Retention Ponds**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Package</th>
<th>Location</th>
<th>Dredging Depth (m)</th>
<th>Volume Dredge material (m³)</th>
<th>Volume of Solid Waste (m³)</th>
<th>Embankment Works (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Ciliwing-Gunung Sahari Drain (Kali Gresik &amp; Cideng Hulu)</td>
<td>1.90 ~ 2.70</td>
<td>156,970</td>
<td>3,140</td>
<td>4,832</td>
</tr>
<tr>
<td>1</td>
<td>2a</td>
<td>Cengkareng Floodway (including sea side)</td>
<td>1.50 ~ 3.50</td>
<td>1,225,500</td>
<td>22,510</td>
<td>4,600</td>
</tr>
<tr>
<td>1</td>
<td>2b</td>
<td>Lower Sunter Floodway</td>
<td>1.60 ~ 2.30</td>
<td>399,250</td>
<td>19,970</td>
<td>1,800</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Cideng Thamrin Drain (Round Road drain)</td>
<td>0.60 ~ 2.30</td>
<td>33,230</td>
<td>810</td>
<td>2,570</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Sentong-Sunter Drain (including Ancol Canal)</td>
<td>0.50 ~ 2.10</td>
<td>140,150</td>
<td>7,010</td>
<td>3,865</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Waduk Sunter Utara (Outlet drain)</td>
<td>1.30 ~ 2.10</td>
<td>413,400</td>
<td>10,340</td>
<td>5,000</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Waduk Sunter Selatan</td>
<td>1.00 ~ 2.10</td>
<td>48,200</td>
<td>1,210</td>
<td>3,057</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>Tanjungan Drain</td>
<td>1.10 ~ 3.30</td>
<td>11,500</td>
<td>290</td>
<td>1,092</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>Lower Angke Drain</td>
<td>2.00 ~ 3.60</td>
<td>248,000</td>
<td>6,200</td>
<td>821</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>West Banjir Canal (sea side)</td>
<td>1.70 ~ 2.50</td>
<td>350,080</td>
<td>8,760</td>
<td>1,190</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Upper Sunter Floodway</td>
<td>1.80 ~ 3.40</td>
<td>82,000</td>
<td>4,100</td>
<td>1,850</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Grogol – Sekretaris Drain</td>
<td>0.70 ~ 3.40</td>
<td>40,500</td>
<td>1,020</td>
<td>2,391</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Pakin – Kali Besar – Jelakeng Drain</td>
<td>0.60 ~ 1.60</td>
<td>100,000</td>
<td>5,000</td>
<td>2,882</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Krukut Cideng Drain</td>
<td>0.70 ~ 0.80</td>
<td>28,700</td>
<td>1,440</td>
<td>1,658</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Krukut Lama Drain</td>
<td>0.50 ~ 0.80</td>
<td>14,900</td>
<td>750</td>
<td>2,400</td>
</tr>
</tbody>
</table>

**Note:**
1. For contracting purposes, the Sunter Floodways has been divided into two sub-packages – Upper Sunter Floodway and Lower Sunter Floodway.
2. For contracting purposes, the Krukut Drain has been divided into two sub-packages – Krukut Cideng Drain and Krukut Lama Drain.

**Total:**

\[
\begin{align*}
3,441,870 & \\
95,080 & \\
42,218 & \\
\end{align*}
\]
2 Alternatives

6. This section consolidates the evaluation of alternatives made at different stages of project formulation. Decisions were not made in isolation, as there are many interrelationships — for example, the choice of dredging method, dredged material transport and disposal locations all interact with each-other. While this supplementary report focuses on JUFMP dredging sites, some reference is made to the Ancol CDF site because of such interactions.

2.1 Strategic Level Decision

2.1.1 Setting

7. Flooding in Jakarta has been a problem for many decades, as a combined result of large areas of low-lying land, with conditions worsening as drainage channels become more clogged with sediment, informal settlement encroaching on drainage waterways, land subsidence, catchment clearing and increasing high intensity development in many areas. Flooding in the Jakarta urban area results from:

- Catchment-wide rainfall, with Jakarta’s waterways being required to carry high flows from middle-upper catchment areas through urban Jakarta to the sea. Riverbanks overflow and flood urban areas.
- Localized rainfall within the urban area, with flooding both resulting from the inability of local water to be delivered to drains that can efficiently transport flows to the sea, and to overflowing of the drains. Storage factors influence this also.
- Intrusion from the sea, with many parts of especially north Jakarta being below sea level.
- Often two or more of the factors operating simultaneously.

8. The effects of flooding are well documented, including significant social dislocation, high economic costs and at times deaths resulting directly from flooding. Unsanitary conditions and poor public health are also aggravated by flooding.

9. Multiple studies and investigations have been conducted over the years, that cite the integrated package of both structural (engineering) and non-structural actions that are required including better catchment management, improved land use sympathetic to flood management, construction of major diversions (such as the recently completed East Banjir Canal) and retention basins, improved wastewater and solid waste servicing, improved groundwater management and most critically, institutional strengthening and improved operations.

2.1.2 The “do nothing” option

10. At a strategic level, the “do nothing” option is to allow flooding and its adverse effects to continue and to worsen. Clearly this is not acceptable.

11. Specifically in relation to the proposed JUFMP project, the “do nothing” alternative essentially means worsening the situation of clogged drainage channels and socio-economic effects of frequent flooding. This is not a situation favoured by the GOI, DKI Jakarta (Jakarta Provincial Government) and by the affected communities. Additionally, the sediment in the waterways would continue to get flushed in an uncontrolled manner into Jakarta Bay.


**2.1.3 Catchment wide vs. local flood management**

12. For the purposes of this subsection major flood management refers to very major activity such as construction of new major diversions to reducing flooding in the urban area from middle and upper catchment rainfall. Local flood management refers to actions that can be undertaken at the local level to enhance efficient delivery of local rainfall to local channels / drains and thence to the sea. While there may be debate on the relative priorities, there is common agreement that the two options are not mutually exclusive, both are required as part of an integrated package.

13. JUFMP is based on the lower part of the catchment. While focusing mostly on local flood management, JUFMP project activities will increase the ability of already established but underperforming floodways to more effectively transfer upper catchment-derived floods to the sea. As an “urgent” dredging project it is not designed to address, for example, the very extensive planning and implementation required.

**2.1.4 Engineering vs. non-engineering approach**

14. Engineering-works for the purposes of this subsection are defined as normal engineering construction and operation projects such as improving flow carrying capacity of drains, pumps, barriers / sea walls. The non-engineering approach by contrast addresses such aspects as changing people’s behaviour (e.g., preventing deposition of solid waste into the waterways) and land use planning and implementation to move people away from flood-prone areas.

15. JUFMP’s focus is on the engineering approach that will yield immediate benefits. However, this would support the much broader non-engineering approach and opportunities are being undertaken through JUFMP to highlight the broader issues. For example, management of solid waste at and immediately around the dredging sites will demonstrate reduced clogging of water channels and other benefits of appropriate management, thereby setting practical examples of what can be achieved.

**2.1.5 Choice of dredging sites**

16. JUFMP hydraulic simulation studies have recommended the rehabilitation of the city’s floods management system to its original design capacity and a routine maintenance system as the most beneficial first step for flood mitigation in Jakarta. The sections of the Jakarta flood management system included in the project have been identified by the GOI as in priority need of urgent rehabilitation and improvement in flow capacities. Prioritization was made based on previous studies under the Western Java Environmental Management Project (WJEMP) and various earlier studies on flood control and flood mitigation in the Jakarta area. The project scoping also took into account the inclusion of all responsible institutions as a means to encourage and establish the required long term sustained routine maintenance system. The project is expected to have important beneficial demonstration effects in terms of institutional coordination, dredging technology and methods, disposal of dredge material, sound environmental and equitable resettlement practices. As such, the technical, environmental and social complexities of works were also taken into account in project scoping and implementation sequencing in order to increase the likelihood of success.

**2.2 Engineering design**

17. The dredging design and associated technology required for the project integrated several considerations especially the constraints afforded by the sites themselves.
2.2.1 Design flow capacity

18. Being within the congested urban area all dredging would invariably cause some disturbance to the local population, and in several instances to settlement that had developed on the banks of the waterways and even over the original alignment of the waterway. The decision was made to minimize disturbance to the settlements consistent with the need to obtain an increase in-flow and storage capacity. Design generally considered the implications of 1 in 100 year events for the larger floodways, and 1 in 25 year events for the smaller waterways.

2.2.2 Dredging technology

19. Dredging technologies can be broadly grouped as the back-hoe / clam shell type and the suction dredging (with or without cutter heads). Suction dredging was not pursued as it is incompatible with the significant amount of solid waste in the sediment of the waterways. Pontoon-based back-hoes are the preferred technology as the majority of construction activity can be restricted to the waterway itself, rather than having to disturb a wide strip along the length of the waterway being dredged.

2.2.3 Solid Waste

20. Separation of the solid waste from the dredged material was considered in terms of the amount of material to be separated, use of mechanical or manual sorting and the location of any sorting. Examination of previous filling of other areas with dredged material determined that disposal methods and post-filling land use would not be constrained by separation of only the large size waste items from the dredged material.

21. Sorting at the dredging sites themselves is preferred as it limits the potential congestion at the Ancol CDF site, offers the potential for temporary local employment and integrates with other activities to keep the dredging sites and immediate surroundings “clean and tidy” during dredging. Mechanical separation was tested, but would need to be located at the Ancol CDF site and the nature of the material, need for supplementary water and operational difficulties demonstrated no advantage.

22. Thus the proposed method of manual separation of only large sized items (and possibly optional separation of smaller items that can be recycled) at the dredging sites has been adopted. DKI Jakarta’s existing operational general landfill at Bantar Gebang offers the only reasonable and secure disposal site for solid waste material.

2.2.4 Transport options

23. Transport considered three main options – hydraulic (pumping), barge and truck, integrating these with dredging technologies and with the chosen disposal site. Pumping was considered inappropriate since the amount of solid waste would likely cause blockages. This would significantly affect any dredging program. Barge transport would not be feasible in most locations because of the bridges and bottlenecks over the drains preventing access to the sea; however, this may be a contractor-preferred method for the lower portions of the larger waterways. Truck transport is therefore the only alternative for the majority of sites and hence is chosen, with the assumption that it will be used everywhere representing a potential worst case situation with regard to traffic effects.

2.2.5 Dredged material disposal options
24. For disposal of the dredged sediment material, several options and alternatives were considered based on sediment test results, past experiences, technical and financial reasons and opportunistic project development works, as part of the decision making process that led to the selection of the Ancol CDF as the final disposal site for non-hazardous material. For instance, during past dredging operations, excavated material was usually dumped on any vacant land owned by DKI Jakarta. In some cases sediments are placed on embankments and not otherwise disposed of, which results in sludge returning to waterways. The JUFMP provides the first opportunity for DKI Jakarta and the GOI to coordinate and dispose dredged materials in a defined and managed disposal area, and to introduce best-practice management principles.

25. GOI assessed several disposal sites and management alternatives. Initially DKI Jakarta proposed several land based sites that were available, scattered throughout the city. These proposed sites were rejected due to their minimal disposal capacity, resettlement issues, aesthetic and odor issues, and supervision difficulties. Three sea-based disposal locations were also considered at Muara Kali Adem (MKA), Marunda, and West Ancol, before the decision on Ancol was made.

26. The site at Ancol was strategically chosen for its accelerated preparedness, size and capacity (capable of receiving almost three times the dredged materials of the project, or approximately 12 million m³). It is also important to note that the Ancol site also had the advantage that it was already an approved ongoing reclamation project. The utilization of the Ancol site is considered a 'win-win' scenario. The other two sea-based locations considered would have had to be constructed, at considerable costs and with the effect of displacing more near-shore area with additional environmental impacts. At the same time, the utilization of non-hazardous dredge material for the Ancol site reclamation will reduce the negative impact from use of other material (sand) to be sourced from quarries.

2.3 Construction Contracting and Supervision

2.3.1 Overall Approach

27. Construction contracting should result in:
   - Achieving the desired engineering outcome.
   - Enabling the experience of construction contractors to be reflected in detailed work plans and implementation.
   - Ensuring that principal interests are addressed. For JUFMP this includes proper implementation of environmental and social safeguards.
   - Cost-effective tenders.
   - Enabling effective supervision and audit of performance.

28. Within this framework there are opposing alternatives of:
   - Defining to the contractor “exactly how” the work will be performed. For example, what technology equipment must be used, how to set up the site and mobilization arrangements, how and where to access the work sites, and precise schedule. This inevitably transfers a lot of responsibility to the principal and typically leads to higher cost tenders and more opportunity for subsequent claims.
   - Defining the engineering outcome, and allowing for the contractor to determine how to achieve that outcome. Tender costs are generally lower and many responsibilities are with the contractor. There remains a risk however that some of the principal interests could be partially neglected.
29. In relation to JUFMP and as very common in international contracting the second approach is preferred and has been chosen but with particular safeguards to ensure that the principal interests are properly addressed and implemented. As a result:
   - The overall contract documentation and tendering approach is focused on achieving the five desired “results” as identified at the beginning of this subsection.
   - The Construction Contractor will have flexibility, within contract-defined constraints, to develop work plans detailing in effect “how the construction will be implemented”.
   - Close supervision, including necessary pre-approval of work plans prior to implementation, is built in to the process.

2.3.2 Integration of environment and social issues

30. As for the engineering aspects there is the fundamental distinction between:
   - Identifying to the contractor exactly how to achieve desired environmental and social outcomes.
   - Contractually requiring the desired outcomes, with the contractor having some flexibility to use practical knowledge and experience to achieve these outcomes.

31. Further there is the legal requirement that the approved AMDAL must be followed. The latter approach is taken, but with very substantial safeguards built-in to ensure that the principal environmental and social desired/required safeguards are instituted and fully integrated with the contracting approach. Resulting from this are the following key aspects:
   - Rather than the traditional role of “Engineer” the JUFMP project will have a Supervision Consultant (SC) with both engineering and environmental/social responsibilities.
   - While the access points and temporary construction lay down areas will not be defined in general until tendering and in detail until after construction contract award, there is an absolute obligation for the Construction Contractors to consult with local communities to ensure that there is minimal disturbance to the communities.

3 Institutional and contracting arrangements

32. Institutional and contracting arrangements have progressed to the stage where roles and responsibilities for environmental and social management for Phase 1 (and later for Phase 2) are now clearly defined. The institutional and implementation arrangements are as follows.
3.1 Key institutions

3.1.1 Steering Committee

33. A high level advisory committee, the Joint Steering Committee (JSC) has been formed to oversee the preparation and implementation of the project and to provide coordination and advisory support at the policy level. The JSC is led by Bappenas and comprises representatives from Ministry of Finance, MoPW, and DKI Jakarta. The JSC met regularly during project preparation and has proven instrumental in providing advisory support and as a forum for high level decision making. The JSC will continue to provide high level oversight during the implementation of the project.

3.1.2 PMU

34. The project requires close coordination among three implementing agencies at both central and local government levels: DGWR and DGCK of the Ministry of Public Works (MoPW), and DKI Jakarta. DGWR will play the role of the Executing Agency. A Project Management Unit (PMU) has been established by DGWR for the purposes of preparing and overseeing the implementation of the project. The PMU comprises three staff from DGWR, three from DGCK, three from DKI Jakarta and one from MoPW’s Office of Planning and Overseas Cooperation. The PMU is supported by a secretariat of five staff from DGWR. During project implementation, the PMU will oversee the overall implementation of the project by the three PIUs as well as undertake to implement common activities, particularly the overall construction supervision consultancy and the Floods Management Information Systems (FMIS). The joint PMU represents an opportunity to evolve into a joint operations and management group for future coordinated management of the Jakarta flood management system.
3.1.3 PIUs

The project will be implemented through the appropriate existing institutions in line with the sector institutional responsibility and legislative framework. There are three Project Implementing Units (PIUs), comprising DGWR (through the Regional Office for the Ciliwung-Cisadane River Basin, BBWS-CC), DGCK and DKI Jakarta. Each will be responsible for carrying out the dredging and rehabilitation of the selected key floodways, canals and retention basins under its responsibility.

3.1.4 Panel of Experts

A Panel of Experts (POE) consisting of three independent, internationally recognized specialists will be mobilized to provide advice on all aspects of the project. The specialists are expected to comprise an environmental expert, an engineer experienced in dredging and dredge disposal, and an urban resettlement expert. The POE’s main responsibilities will include monitoring and evaluating the preparation and implementation of various safeguards instruments (RPF, RPs, EMPs and the grievance redress procedures) and advising the PMU on actions to be taken to improve compliance. If required, the POE may be enlarged on a temporary or permanent basis by the addition of specialists to provide expertise for specific, unplanned or critical issues or needs, which may arise during project implementation. These additional experts, if any, may be mobilized with terms of reference agreed among the PMU, the World Bank, and the three initial experts that will comprise the POE. The POE will convene at regular intervals to review the status of work in progress. However, special extraordinary meetings may also be called to review particular critical stages of technical, environmental, and social activities.

3.1.5 Supervision Consultant (SC)

This is the key consultancy contract that will be instrumental in supporting the PMU’s overall management, oversight and monitoring of the project. Where there are assessed weaknesses in capacity, particularly in the areas of the supervision of project environmental plans, the implementation of Resettlement Plans (RPs) and the Grievance Redress System (GRS), the SC has been tasked to provide the necessary expertise to support the PMU during project implementation. The scope of this technical assistance services include (i) supervising the implementation of the various dredging and construction works contracts under the project including at all disposal sites (ii) supervising the implementation of the Environmental Management and Monitoring Plan (RKL/RPL) by the works contractors, (iii) supporting the PMU and DKI Jakarta in the implementation of Resettlement Plans (RPs), and (iv) developing and implementing the grievance / complaint handling mechanism of the project with DKI Jakarta. A summary of the detailed scope of activities to be undertaken are as follows:

**Supervision of Construction Works**

1.1 Review / check final contracts with contractors.
1.2 Review / check Detailed Engineering Designs and drawings, method statements, specifications, and activity schedules, carry out additional survey and investigation as required, as well as conduct any revisions deemed necessary and to obtain their approval by the PMU.
1.3 Test all sections of each project site for hazardous material prior to dredging works.
1.4 Supervise the implementation of the works, including (but not limited to):
   - Dredging (including the separation of solid waste from dredge material, and their transportation and disposal at approved landfill and Ancol CDF respectively), embankment and rehabilitation of canals, pumps, rack repairs and maintenance.
   - Provide assistance to the PMU for processing of payment requests made by the contractors as required.
• Maintain site records and prepare detailed monthly progress reports.
• Prepare work as executed drawings and records, and operation manuals and hand over the completed works to the PMU.
• Prepare a Practical Completion and Outstanding Defects Report for each construction contract supervised.
• Prepare a Final Completion and Handover Report for each construction contract supervised.

1.5 Supervise and monitor the construction activities at the Ancol CDF site during project implementation, and at all its offsite locations such as the source locations for the sand and the laterite soils.

1.6 Provide PMU with technical assistance as needed from time to time. This may include the provision of support and advice to the PMU regarding implementation of project works, particularly on the technical, overall planning and procurement aspects of the project.

Environmental Management
1.7 Monitor (including preparation of quarterly RKL/RPL implementation report) and supervise the environmental protection measures undertaken to mitigate environmental impairment due to construction and disposal activities, consistent with
• The Environmental Management and Monitoring Plan (RKL/RPL) of each work site including all disposal sites.
• The Environmental and Social Management Framework (ESMF) of the project.

Resettlement Plans (RPs)
1.8 Supervise and support the implementation of Resettlement Plans (RPs), consistent with
• The Resettlement Plan (RP) of each site where involuntary resettlement in required.
• The Resettlement Policy Framework (RPF) of the project.

1.9 Provide technical and administration assistance in land acquisition and resettlement process

Grievance Redress System (GRS) / Complaint Handling Mechanism
1.10 Develop and operate the Grievance Redress System (GRS), which will include but will not be limited to administering complaints from Project Affected Persons (PAPs) in a systematic way on a day to day basis;
1.11 Update complaints on the website, informing those who complain on the status of their complaint as well as providing feedback or follow up actions;
1.12 Assist DKI Jakarta in providing acceptable follow-up actions on complaints, ensuring that decisions are made based on transparent, fair, independent, and accountable processes through Grievance Redress or Complaint Handling Advisory;
1.13 Provide recommendations to DKI Jakarta authorities on status of complaints, from the on-site unit through the provincial level processes.

Others
1.14 Monitor and report on any activities at the project’s “linked” sites.
1.15 Design, develop, and operate a web-based project communications and reporting system

3.1.6 Construction Contractors
38. The Construction Contractors will be responsible for the dredging and transport of dredged drain and waduk material from dredging sites to the Ancol CDF (non-hazardous dredge material), Bantar Gebang Landfill (solid waste separated from the dredge material) and PPLi secure landfill (hazardous material, if any are found) in accordance with the construction contracts, approved AMDAL for Phase 1 and this supplementary report. The civil works contracts will include contractual requirements for implementing the environmental requirements.
3.1.7 DKI BPLHD

39. DKI BPLHD is the environment management agency of DKI Jakarta with the responsibility of approving and enforcing the AMDAL for all city wide (Jakarta) projects. Also, the agency is responsible for monitoring the implementation of the associated management plans. In the implementation of AMDAL, the DKI BPLHD is also supported by the city level (Municipal-Walikota) environment management agencies. DKI BPLHD has already approved the AMDALs for Phase 1 of this project and for the Ancol CDF. DKI BPLHD has already started monitoring the ongoing construction works at Ancol CDF and will continue to do so. Joint monitoring with the World Bank is planned during implementation of the JUFMP project.

3.1.8 World Bank

40. The World Bank will supervise and monitor implementation of the project in line with its own operational policies for all aspects of the project, including environmental and social issues.

3.2 Construction contracting approach

41. This approach has been developed by the PMU/PIUs’ construction contract committee.

3.2.1 Overall approach

42. Contracts are to be established under standardized international competitive bidding arrangements with pre-qualification, short-listing and then tendering, bid assessment and contract award. The approach as identified below is based on international and local experience to ensure that:

- cost-competitive bids are obtained
- the project proponent via the Supervision Consultant (SC) retains close control on how the construction is implemented, and
- there is a close audit of the volumes of material dredged and properly transported to and disposed at the Ancol CDF.

43. The technical requirements are based on the detailed designs by the engineering design consultants retained by the PMU (i.e. Project Preparation Consultant). Importantly and this influences environmental management, the bid documents will specify design, but not the sequencing of work, nor the method to conduct the work, nor equipment to be used, nor define access locations. Bidders are required to identify such matters in a preliminary Contractor’s Work Plan to be submitted at the time of bidding. There will be an assessment of this during contract negotiations with the preferred bidder, and within one month of contract award the Construction Contractor will be required to submit a detailed Contractor’s Work Plan. The Work Plans are required to be examined and approved by the Supervision Consultant (SC).

3.2.2 Detailed approach to environmental and social management

44. It is necessary to align the environmental and social management aspects of the Construction Contracts to the overall approach. Specific aspects include:

- The AMDAL and the requirements recommended by this current report will form part of the construction contract with those parts relating to the Construction Contractor being specific requirements to be followed by the contractor.
- Certain items have been further emphasised by including them in the “Special Conditions of Contract.” In particular, as detailed in this report, the majority of the potential effects relate to interaction with the local community and very specific conditions are being included in relation to the minimum number of contract-required meetings with the community.
- Staffing of the Construction Contractor includes requirements for specific staff with responsibility for environmental and social management.
• HIV/AIDS awareness and prevention measures have been included in the Special Conditions of Contract though has not been examined in detail under the local AMDAL process.

• The Construction Contractor is being required as part of the bid to submit a Contractor Preliminary Environmental and Social Management Plan (ESMP) as an adjunct to the preliminary Contractor’s Work Plan.

• The Contractor Preliminary ESMP will be assessed as part of bid evaluation, both in terms of compliance with AMDAL / this current report and its suitability.

• Within 1 month of contract award the Construction Contractor will be required to submit for approval the Contractor Detailed Work Plan and associated detailed Contractor’s Environmental and Social Management Plan.

45. It will be seen later that local regulations require certain mitigation measures, the most relevant for JUFMP being restricted hours of transport truck movement, development of detailed traffic management plans and testing and certification of trucks for safety, emissions etc. These have been developed by the local government recognizing the existing social and environmental conditions within Jakarta. Compliance with such regulations is specifically required through the AMDAL, this report, and Contract General and Special Conditions as appropriate.

46. Costing for environmental and social mitigation is also required to align closely with the approach to costing used for the construction factors. With limited exception all costs are being built into unit costs for dredging and unit costs for transport, with additional breakdown for distance of dredging sites from the Ancol CDF. Environmental and social costs built-into the unit costs include, but are not limited to:

- Workplace sanitation
- Safety
- Traffic management
- Preventing spillage of dredged material around the site and transport routes
- Vehicle emission control
- Noise management; and
- General consultation with the community.

47. Specific identifiable environmental and social cost items to be included in the contract include a series of community consultation meetings.

4 Refinement of engineering design

48. Engineering designs as presented in the approved Phase 1 AMDAL was naturally based on the latest information (that was included in the AMDAL Terms of Reference) provided by the Project Preparation Consultants (PPC) and some early investigation / design work during the engineering design consultancy that commenced in October 2009. Since the preparation of the Phase 1 AMDAL:

- Detailed survey information has been obtained for all sites and incorporated into the design.
- Preliminary designs have been reviewed by the PIUs, PMU and the World Bank and some details were changed to accommodate certain issues, for example specific local knowledge (what bank protection would be desirable), optimizing performance, contracting procedures and packaging, potential effects on infrastructure, etc.
- More detailed social and environmental information from both the Phase 1 AMDAL and Phase 2 preparation activities has been considered, especially in relation to construction contract formulation. Specific mitigation measures have been reviewed in relation to adequacy and practicality.
- Schedules have been refined.

49. The main changes that have occurred in the interim period are:
• Contract packaging and scheduling have been adjusted.
• Volumes of material to be dredged and transported and embankment works are better defined. Summarized information is given in Table 4-1.
• Separation of solid waste from the dredged material has been reviewed. Considering many factors (known local conditions, practicality, effects at disposal site) it has been determined that it is necessary to separate only major items from the dredged material and for the Construction Contractor to coordinate with other agencies to manage floating wastes and garbage on the riverbanks.
• Possible equipment requirements have been reviewed. The majority of equipment remains as described earlier, but with the potential use of water-jetting under bridges for local dislodging and movement of sediment to locations where it can be picked up by excavator being identified to minimize infrastructure disturbance and reduce the amount of manual excavation.
• While employment of immediate local persons will be encouraged it will not be mandated.
• The approach to incorporating environmental and social considerations into Construction Contracts has been defined (Section 3.2 and throughout Section 6).

50. Comparing this with Table II-7 of the Phase 1 AMDAL:
• The lengths of individual drains to be dredged are reduced.
• The dredged volumes in each site are reduced.
• The volume of total solid waste included with the sediment has now been estimated.
### Table 4-1 JUFMP Phase 1 and 2 Contract packaging

<table>
<thead>
<tr>
<th>Package</th>
<th>Location</th>
<th>Dredging Depth (m)</th>
<th>Volume Dredge material (m³)</th>
<th>Volume of Solid Waste (m³)</th>
<th>Embankment Works (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Ciliwing-Gunung Sahari Drain</td>
<td>1.90 ~ 2.70</td>
<td>156,970</td>
<td>3,140</td>
<td>4,832</td>
</tr>
<tr>
<td></td>
<td>Waduk Melati (Kali Gresik &amp; Cideng Hulu)</td>
<td>2.20 ~ 3.10</td>
<td>99,490</td>
<td>1,250</td>
<td>1,905</td>
</tr>
<tr>
<td>2a</td>
<td>Cengkareng Floodway (including sea side)</td>
<td>1.50 ~ 3.50</td>
<td>1,225,500</td>
<td>22,510</td>
<td>4,600</td>
</tr>
<tr>
<td>2b</td>
<td>Lower Sunter Floodway&lt;sup&gt;Note 1&lt;/sup&gt;</td>
<td>1.60 ~ 2.30</td>
<td>399,250</td>
<td>19,970</td>
<td>1,800</td>
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<tr>
<td>Phase 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cideng Thamrin Drain (Round Road drain)</td>
<td>0.60 ~ 2.30</td>
<td>33,230</td>
<td>810</td>
<td>2,570</td>
</tr>
<tr>
<td>4</td>
<td>Sentlong-Sunter Drain (including Ancol Canal)</td>
<td>0.50 ~ 2.10</td>
<td>140,150</td>
<td>7,010</td>
<td>3,865</td>
</tr>
<tr>
<td></td>
<td>Waduk Sunter Utara (Outlet drain)</td>
<td>1.30 ~ 2.10</td>
<td>413,400</td>
<td>10,340</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>Waduk Sunter Selatan</td>
<td>1.00 ~ 2.10</td>
<td>48,200</td>
<td>1,210</td>
<td>3,057</td>
</tr>
<tr>
<td></td>
<td>Waduk Sunter Timur III</td>
<td>0.70 ~ 3.30</td>
<td>51,000</td>
<td>1,280</td>
<td>305</td>
</tr>
<tr>
<td>5</td>
<td>Tanjungan Drain</td>
<td>1.10 ~ 1.90</td>
<td>11,500</td>
<td>290</td>
<td>1,092</td>
</tr>
<tr>
<td></td>
<td>Lower Angke Drain</td>
<td>2.00 ~ 3.60</td>
<td>248,000</td>
<td>6,200</td>
<td>821</td>
</tr>
<tr>
<td>6</td>
<td>West Banjir Canal (sea side)</td>
<td>1.70 ~ 2.50</td>
<td>350,080</td>
<td>8,760</td>
<td>1,190</td>
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<tr>
<td>7</td>
<td>Grogol – Sekretaris Drain</td>
<td>0.70 ~ 2.30</td>
<td>40,500</td>
<td>1,020</td>
<td>2,391</td>
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<tr>
<td></td>
<td>Pakin – Kail Besar – Jelakeng Drain</td>
<td>0.60 ~ 1.60</td>
<td>100,000</td>
<td>5,000</td>
<td>2,882</td>
</tr>
<tr>
<td></td>
<td>Krukut Cideng Drain&lt;sup&gt;Note 2&lt;/sup&gt;</td>
<td>0.70 ~ 0.80</td>
<td>28,700</td>
<td>1,440</td>
<td>1,658</td>
</tr>
<tr>
<td></td>
<td>Krukut Lama Drain&lt;sup&gt;Note 2&lt;/sup&gt;</td>
<td>0.50 ~ 0.80</td>
<td>14,900</td>
<td>750</td>
<td>2,400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3,441,870</td>
<td>95,080</td>
<td>42,218</td>
</tr>
</tbody>
</table>

<sup>Note 1</sup> For contracting purposes, the Sunter Floodways has been divided into two sub-packages – Upper Sunter Floodway and Lower Sunter Floodway.

<sup>Note 2</sup> For contracting purposes, the Krukut Drain has been divided into two sub-packages – Krukut Cideng Drain and Krukut Lama Drain.

## 5 Additional environmental and social information

### 5.1 Overview

Since the completion of the Phase 1 AMDAL, the following have been undertaken:

- Detailed baseline data collection for the Phase 2 AMDALs (that were being prepared through 2010).
- A series of Focus Group Discussions (FGDs) in all kelurahan (villages) of both Phase 1 and Phase 2 sub-project areas.
- Additional consideration of sediment quality issues, especially to incorporate additional information from the Phase 2 primary data collection and to consider the most appropriate manner to satisfy the DKI BPLHD (Phase 1 AMDAL) requirement for on-going sediment monitoring.
- As discussed in several places in preceding sections, determination of the best method to align environmental and social requirements into the construction contracts and into the institutional arrangements that will exist during JUFMP implementation.

<sup>1</sup> Note that contract packages 1, 2a and 2b are in Phase 1 and the rest of the packages are in Phase 2.
5.2 Social and community issues

52. Apart from resettlement (which is not required in the JUFMP Phase 1 sites) the most dominant environmental and social issues all relate to the dredging impacts and the interaction of the JUFMP project with the local community. The desire for flood mitigation is very commonly expressed by the community.

53. As evidenced from information from the Focus Group Discussions (FGDs) there was limited real awareness of the project amongst local communities, there is a wish for more information and community consultation, and there are concerns that environmental and social considerations will not be given proper attention. Pre- and post- FGD questionnaires identify that that the FGDs themselves are being considered as both a successful avenue for information sharing and as helping to allay concerns about the level of environmental and social management.

54. The types of issues that are being raised by the communities in mid-2010 are similar to those identified during the Phase 1 AMDAL preparation; namely dirty environment, traffic, noise, disturbance to daily activity. It is thus reasonable to adopt these as key issues to give attention to in any environment and social management plan for the implementation of JUFMP.

5.3 Baseline environmental information

55. This sub-section addresses additional physical, chemical and biological baseline information collected since the Phase 1 AMDAL was completed. While this information has focused on Phase 2 sites, both Phase 1 and Phase 2 sites are generally similar in that they are in the highly urbanized Jakarta area.

5.3.1 Sediment quality

56. Additional sediment samples have been collected and analysed. The results all support the earlier sampling and analysis that none of the material is classified as B3 (i.e., hazardous) waste, using the local standards referenced with international levels.

5.3.2 Traffic

57. Traffic studies confirm the unsurprising conclusion during Phase 1 preparation that there is prevailing substantial congestion within the Jakarta area. As part of this supplementary report there has been further investigation of potential total Phase 1 sediment transport truck volumes in the vicinity of the Ancol CDF, with the assessment and mitigation addressed in Section 6.

5.3.3 Noise

58. Detailed noise measurements were undertaken at Phase 2 sites in accordance with Indonesian methodology. These show that the prevailing (baseline) noise levels frequently are already above local standards.

5.3.4 Air quality

59. Detailed air quality measurements were undertaken at Phase 2 sites in accordance with Indonesian methodology and indicate that prevailing (baseline) conditions generally met local standards.

5.3.5 Water quality

60. Detailed water quality measurements were undertaken at Phase 2 sites in accordance with Indonesian methodology and indicate that prevailing (baseline) conditions frequently did not meet local standards.
5.3.6 Biological environment

With the exception of the wildlife sanctuary adjoining the downstream portion of the West Banjir Canal project site (a JUFMP Phase 2 site), the biological environment of the Phase 2 sites are very similar to that of the Phase 1 sites; aquatic ecosystems reflecting the polluted drains and waduks, terrestrial ecosystems reflecting the highly urbanized environment with value related to aesthetics and food crops rather than any conservation value.

5.3.7 Conclusions

Additional baseline information collection for Phase 2 sites supports the findings of the Phase 1 studies.

6 Phase 1 environmental assessment and mitigation

This section addresses whether the assessment and mitigation of potential impacts from JUFMP Phase 1 as presented in early 2010 remains valid considering the additional baseline information, refined designs and now-established institutional and contracting arrangements.

The Jakarta physical and biological environment is a highly modified urban environment supporting a major and diverse population. Flooding significantly disrupts the lives of much of the population, and especially the poor. The communities have clearly expressed their desire to get relief from flooding, but also the wish for on-going consultation and for attention to be given to environmental and social matters.

In line with Indonesian practice, effects and mitigation are divided in the following subsections into “pre-Construction”, “Construction” and “Post-Construction” periods. Most attention is naturally given to the “Construction” period when there is potential for the majority of adverse effects and the need for carefully integrated mitigation. A matrix summarizing effects, mitigation and monitoring for these various periods is found in Appendix 2.

6.1 Pre-construction period

This period is defined for this report as the period between approval of the JUFMP Phase 1 AMDAL (formally by letter dated 30 March 2010) and when the first construction contract is signed (currently projected for early 2012). There will be a transition period when there will be construction bidding and assessment, and for the purposes of this report this transition period will be incorporated into the “Pre-construction” period.

6.2 Construction period

6.2.1 Contractors Environment and Social Management Plan

As noted in Section 3.2, in addition to the requirements of the AMDAL for Phase 1 (and the AMDAL for Ancol CDF), the major element of environmental and social management during the construction period will be the need for the Construction Contractor to develop and have approved the Contractor’s Detailed Environmental and Social Management Plan that integrates with the Contractors Detailed Work Plan and is in line with the AMDAL and this current document. Appendix 1 of this current report further details the requirements for the Contractors ESMP.
6.2.2 Community perception and interaction

68. The potential for significant negative adverse effects exists, as does the potential for each JUFMP works sub-project to integrate positively with the local community. What will actually occur is a combination of:

- Realistic expectations of the community about the project.
- The amount and timing of information provided to the community.
- Whether the community believes that their concerns have been adequately addressed.
- Whether avenues for communication remain open, meaningful and able to achieve common understanding.

69. JUFMP has developed measures to mitigate potential adverse effects and to reinforce positive outcomes. Nevertheless, there remains a residual potential that some expectations of the community will not be realized. These expectations relate to:

- The extent of flood mitigation that will be achieved – a factor that is difficult to explain considering the many influencing aspects and especially that it is always a statistical possibility that at any point there may be an extreme flood beyond design capacity of the dredged waterways.
- Local employment arising from the project. At best, the project would have some but limited short term employment potential.
- Aspects outside of the scope of JUFMP e.g., long term solid waste management.

70. Specific mitigation measures are:

- Required and specified formal community consultation by successful Construction Contractor during initial development of Contractor’s Detailed Work Plan and Contractor’s Detailed ESMP – to be included as line cost item in construction contract.
- Required and specified on-going community consultation meetings by Construction Contractor during the construction period – to be included as line cost item in the construction contract.
- Required and specified establishment, operation and manning of POSKO’s (project site office which will, amongst others, function as “project information centers” to disseminate project information, receive complaints, etc) at each sub-project site, supported by specified centralized IT support – responsibility of the Supervision Consultant and to be included in the scope of the Supervision Consultant contract.

71. Specific monitoring of community perception and consultation will be undertaken by the Supervision Consultant. These consultations will aim to provide indications of how individuals have altered opinions over time and the extent of understanding that has been transferred to the community via the information center, etc. This monitoring will be complemented by such indicators as visits to the POSKO’s, complaints received and the satisfactory resolution of complaints.

6.2.3 Local employment

72. In line with the approach to contracting (Section 3.2) the Construction Contractor will have the flexibility to determine workforce composition and the source of the workforce. However, bid documents will highlight to the bidder the expectation of the local communities that there will be opportunities for local employment.

73. The Contractors preliminary ESMP submitted with the bid will be required to identify what local employment is intended. Based on previous practice on dredging projects elsewhere in Jakarta it is expected that most of the unskilled employment will be derived locally.
6.2.4 Hydraulics

74. There will be gradually increasing flow capacity in the drains as construction progresses. This is not considered further under the “Construction Period”, but the positive effects of flood mitigation resulting from the project have been analyzed as part of the design preparation process.

6.2.5 Spillage of dredged material

75. Spillage can occur at the dredging sites themselves and also during transport of dredged material to the disposal sites. This potential effect is of major concern to the community in terms of various consequential effects:
   - Safety for moving vehicles
   - General area cleanliness
   - Spilled material left on roads and allowed to dry out.
   - Accelerated damage to roads.

76. Based on a variety of historically poorly managed construction projects around Jakarta the concerns are justifiable. The project is undertaking several measures to reduce spillage and to ensure that the adverse effects do not occur. Furthermore, if there is accidental spillage, procedures are in place to correct the situation.

77. Spillage in the immediate vicinity of the dredging sites could occur within the designated Construction Contractor’s work area(s). By various conditions in the construction contract and AMDAL (and this current report) work site spillage and the consequential effects will be managed as follows:
   - By specific exclusion of the public from the Construction Contractor work area(s) the community would not be directly affected by the spillage.
   - By general requirements to maintain a safe and clean work site, the Construction Contractor will be obliged to both limit spillage and then to clean spillage should it occur.
   - By requirements to ensure that vehicle tires and vehicle bodies do not transfer dredged material to roads external to the work areas, the Construction Contractor will have a major incentive to limit spillage within the work site.

78. Spillage to the external roads could come from one or more of:
   - Dirty tires or vehicle bodies.
   - “Too wet” dredged material leaking from improperly sealed truck doors or transport containers.
   - Overfilling the trucks / containers.
   - Excessive speed.

79. Management options for these include:
   - Vehicle washing or cleaning.
   - Draining dredge material prior to filling transport containers or directly to trucks
   - Use of transport containers and ensuring any drainage valves are closed prior to transport
   - Sealing the back flaps of transport trucks
   - Limiting the amount of filling that can occur.
   - Covering loads during transport.
   - Limiting speed limits
   - Having a clean-up team with brushes, shovels, water washdown along transport routes to clean up spillage as it occurs.

80. In line with the AMDAL and this report the Construction Contractor is obliged to identify in the Contractors ESMP’s what combination of measures will be adopted to prevent spillage to the roads. These measures are then reviewed for suitability and adequacy by the Supervision Consultant
and as appropriate, accepted “as is” or after modification. However, the responsibility for successful implementation remains with the Construction Contractor.

81. Monitoring of successful implementation is the specific responsibility of the Supervision Consultant who has the powers to require rectification if spillage does occur, including if necessary bringing in an external party to undertake clean-up at the Construction Contractor’s expense. Furthermore, the community has an informal role in monitoring in that if spillage occurs any community member has the right to complain, preferably via the POSKO at site to the Supervision Consultant, or via the required Construction Contractor-community consultation meetings whose proceedings must be reported to the Supervision Consultant. It is noted that the aspect of spillage to roads by vehicles returning from the Ancol CDF site is specifically addressed in the Ancol Updated RKL / RPL by the requirement for a vehicle wash for vehicles prior to leaving the Ancol CDF site.

6.2.6 Air quality

82. Potential adverse effects arise from:
   - Vehicle emissions and from construction equipment
   - Odors and smells, principally from the dredged material
   - Dust

83. The vehicle emissions will add to the already high, but mostly within standards local air quality as represented by levels of NOx, SOx, HC, etc. Considering the amount of project-induced traffic, hundreds rather than the multi-thousands of prevailing normal background traffic movements per day, the marginal adverse effect is expected to be low.

84. The air chemistry monitoring to date indicates that identifiable odor-producing compounds are below standards. In various areas the community notes odors variously from the general poor quality of drain and waduk water, poorly disposed solid waste and in places from material dredged or removed from the drains and waduks. Reliable quantitative information on the odors from the dredge material has not been possible, but observation is that the freshly dredged material occasionally generates local odors, but the odors decrease rapidly with time. It can be expected that there will be increases in odors, with the extent of the increase depending on amount of exposed, freshly-dredged material, local weather patterns and disturbance of the water of the drains and waduks.

85. The greatest potential source of elevated dust is from spilled dredge material drying on the roads and then subjected to on-going traffic movement. In relation to vehicle emissions, Construction Contractors are required to ensure that all vehicles have and maintain “compliance certificates” in relation to emissions and road worthiness, with monitoring for compliance by the Supervision Consultant.

86. For odors, there are no realistic mitigation measures for full prevention. Rather mitigation is to be based on a combination on minimizing the amount of exposed, odor-producing dredge material in critical areas, on maintaining close communication with the community and on developing measures that align with the overall Contractors Work Plan and Environmental and Social Management Plan (ESMP). Oversight of this is by the Supervision Consultant.

87. For dust, prevention is the key mitigation measure with a strong project focus and requirement to prevent spillage of dredged material and to clean it up when it does occur.

6.2.7 Noise
88. As noted in Section 5.3.3 existing noise levels are already above local standards. Project noise will be derived from various sources; traffic, dredging equipment, and pile driving (only where works include embankment repairs with sheet-piles). With noise levels already exceeding standards in various locations it is unrealistic to expect that noise levels to be controlled to remain within standards.

89. Thus noise management will based on a combination of:

- requirement to keep noise producing equipment such as vehicle in efficient operational conditions
- obtaining an agreement with the local community whereby the perception of intrusive noise and acceptance, or otherwise, of noise is more important than absolute noise levels. The Construction Contractor’s ESMP will be required to document the discussions with community representatives and resultant detailed noise management measures that could be expected to include such factors as:
  - limiting certain high noise activities such as pile driving during noise-sensitive times such as prayer times
  - placing stationary generators, compressors, etc away from noise-sensitive locations and / or using noise shields
  - choosing local vehicle access routes where there would be least possible interaction with noise-sensitive areas.
- Required instructional programmes for Construction Contractor’s staff in the requirement for and methods to control noise; for example, limiting transport vehicle noise by slowly accelerating trucks and prohibiting use of horns unless in an emergency situation.

90. Monitoring will be by a combination of:

- Self monitoring by Construction Contractor, with this reinforced by feedback from community and Supervision Consultant.
- Compliance monitoring by the Supervision Consultant, to ensure that the Construction Contractor is implementing the agreed Contractors ESMP.
- Informal monitoring by the community, with feedback through the project complaints system (including local POSKO’s) and through Construction Contractor’s community meetings.

6.2.8 Traffic

91. Project generated traffic will involve:

- Very occasional mobilization / demobilization of heavy equipment to and between the dredging sites. Most of this will likely occur during night hours.
- The regular transportation of dredged sludge to Ancol CDF and of solid waste to the Bantar Gebang disposal site (TPA). This will be restricted to night hours.
- Frequent, “all hours” movement of a few light vehicles transporting people etc. to / from sites.

92. The first two items are discussed further. Traffic congestion within Jakarta and the effects arising are well recognized problems, and in part to address this issue DKI Jakarta has well established rules and procedures to control heavy vehicles. Notable are:

- General controls both for hours of operation (generally at night to avoid times when roads are most busy) and for “designated” roads.
- Requirement for Traffic Management Plans to be developed and approved in advance for “extraordinary” movements (such as mobilization of very heavy construction equipment) and for regular medium term intensive truck movement as will occur with the dredged material transport trucks.
• Requirements for vehicles to be regularly checked for road worthiness and for emissions.

93. As a minimum all JUFMP project traffic will be contractually required to abide by these established rules and procedures. However, given the nature of the project additional considerations as outlined below are required.

Areas affected by the project traffic can be categorized as:
• Sub-project site immediate access and local feeder routes to the main transport routes.
• The main transport routes.
• Main road in immediate vicinity of Ancol (Jl. RE Martadinata) where JUFMP transport truck movement will be at highest immediately prior to entry to Ancol CDF.

94. Different issues are important for these different areas. Issues associated with the immediate access and local feeder routes are very much focussed on interaction with the local communities. Roads are typically narrow, parking opportunities limited and there is often a high density of people living and working in the area. Hence issues relate to preferred dredging access location (as this will influence road access and local feeder routes), methods of safe operation and operational practices such as control of noise, preferred hours of operation, emission control, preventing spillage etc. Thus in addition to the standard traffic management plan attention must be given to the interaction with local population, recognizing that there will be adverse short /medium term traffic effects but with Construction Contractor and community working together to achieve an acceptable outcome. For example, the Construction Contractor may involve local people for security or as informal traffic personnel.

95. The traffic effects on the main transport routes will be minimal considering that transport truck movement will be at night when general vehicle traffic movement will be very much less than during daytime and especially morning and afternoon peaks. At Jl. RE Martadinata near the Ancol site project related truck movement will be highest. At this location effects are related to road capacity issues and also premature road damage because of the repetitive loaded truck movement. While the actual numbers of JUFMP trucks will depend on individual contractor work plans it is estimated that there could be as many as 40-50 movements per hour each way from the JUFMP Phase 1 dredged material movement, but more likely with an average of about 30 movements per hour, with all movement being during the low traffic night-time period. In this area the road is in good condition, divided and with 2 lanes of free traffic movement each way, with the capacity calculated from standard tables as 3250 “passenger car units” (pcu) per hour per 2 lanes 1 way vehicles per hour. Allowing for a truck to be equivalent 3 pcu, peak JUFMP truck movements would be about 5% of capacity, and at these times the other-than-JUFMP traffic is well below capacity.

96. Thus management of traffic will be by the Construction Contractor providing the Contractor Detailed Traffic Management Plan based on:
• Requirements of transport and associated authorities.
• JUFMP-required consultation with the local communities.
• Integration with the Construction Contractors Work Plan.
• Addressing requirements of the AMDAL and this current report.

The Detailed Traffic Management Plan will address as a minimum the following:
• Identification of access points to / from the dredging sites and the feeder routes.
• Community-agreed hours of operation in the areas at and adjacent to the dredging sites.
• Any special operational conditions agreed to with the local community.
• Contractor staffing, signage, barriers etc to facilitate safe movement of vehicles at and surrounding dredging sites.
• Identification of nominated primary routes, and alternatives if primary routes are closed or otherwise unavailable, between dredging sites and the Ancol CDF in conformity with the requirements of traffic authorities.
• General specifications of the trucks to be used, including net and gross weights, load capacity and maximum load per truck considering the “no spillage” requirement. Specific reference to spillage prevention is given in Section 6.2.5.
• Estimation of peak hourly truck movements from each dredging area, and average hourly numbers of truck movements considering dredging plan, daily peaks and long term averages.
• Certification that only vehicles holding current roadworthiness certificates will be used.
• Method of clearly identifying (from quick external inspection) that trucks are both related to the JUFMP project and that are associated with a particular Construction Contractor and a particular sub-project.
• Outline of safety requirements and training that will be required of all drivers, including a program focused on the particular hazards of extensive night driving.
• Certification that the Construction Contractor takes responsibility for ensuring that the Detailed Traffic Management Plan is implemented, whether trucks are operated directly by the Construction Contractor or by a sub-contractor etc.

97. This Plan will require the approval of both the relevant authorities (at Contractor’s expense) and the Supervision Consultant. The Supervision Consultant will have primary responsibility for monitoring compliance. Furthermore, considering JUFMP will have multiple concurrent Construction Contracts the Supervision Consultant will be responsible to
• ensure as far as possible conformity between the different individual Construction Contractor Traffic Management Plans
• produce an integrated assessment of traffic volumes for the section of Jl. RE Martadinata close to the Ancol site to ensure that the overall JUFMP-related traffic remains well within available capacity.
• For the first six (6) months of the construction period undertake a detailed traffic count in the vicinity of the Jl. RE Martadinata / Ancol CDF intersection at least once every two months from 1900 one evening until 0700 the following morning that will identify and count non-JUFMP traffic (by category; for example, standard, trucks, buses) and JUFMP-traffic (broken down by Construction Contracts and sub-project. The day (of week and of month) shall be random and vary, and shall not be announced to Construction Contractors in advance of or during the survey.
• Be aware of possible events that may lead to congestion problems and as necessary coordinate with the Construction Contractors to reschedule dredged material delivery trucks.
• Ensure that any road damage arising from JUFMP trucks has to be repaired by the contractor within 24 hour or covered with temporary steel plate in accordance with UU No.22 / 2009 regarding traffic and land transport.

98. Requirements of this section shall be integrated with other “traffic” aspects in other sections such as prevention of spillage.

6.2.9 Sediment quality
99. Based on extensive sampling and analysis it was found that:
• None of the material tested can be defined as “hazardous” (or “B3” using Indonesian terminology) which would require special disposal conditions.
• Using relevant international “screening levels” (such levels are not included in the Indonesian regulatory system) almost all of the material is identified as suitable for future land uses without any additional investigation. As noted this aspect is related to the Ancol
CDF and relevant AMDAL / Updated RKL / RPL and limited additional monitoring is identified for the Ancol site.

- Using direct toxicity information and also standard health assessments, the material does not have any risks.

100. The AMDAL Commission / DKI BPLHD have requested that there be additional sediment testing in the JUFMP Phase 1 sites before dredging commences and after the dredging is completed. Appropriate protocols have been developed that integrate the proposed dredging operations with effective and cost-efficient pre-dredging testing procedures. For the pre-dredging testing procedures, the protocols include the method for sampling and interpretation and action arising after sample analysis.

101. Management is based on the requirement that B3 material is not to be disposed of at the Ancol site. The main method to achieve this is a monitoring programme to identify compliance with this requirement in advance of the dredging. Using the protocols established, Table 6-1 summarizes the expected number of composite samples that are to be taken for pre-dredging sampling for the JUFMP Phase 1 sites.

**Table 6-1 Sediment quality testing for JUFMP Phase 1 sites**

<table>
<thead>
<tr>
<th>JUFMP Phase 1 Sub-project</th>
<th>Length km / Area ha</th>
<th>No. Composite samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciliwung Gunung Sahari</td>
<td>5.10 km / 4 ha</td>
<td>4</td>
</tr>
<tr>
<td>Waduk Melati</td>
<td>4.90 ha</td>
<td>3</td>
</tr>
<tr>
<td>Cengkareng Floodway</td>
<td>7.84 km</td>
<td>5</td>
</tr>
<tr>
<td>Lower Sunter</td>
<td>9.98 km</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

102. Sampling and analysis is the responsibility of the Supervision Consultant on behalf of the PMU / relevant PIU. This will be included as a scope of work in the consultant’s Terms of Reference. It is estimated that collection and analysis will cost about 3 - 4,000,000 rupiah (US$ 300 - 400) per sample.

103. The Construction Contractor’s responsibilities are:
- defining the dredging program so that the sampling, analysis and interpretation program can be undertaken in a timely manner (not too early such that that planned dredging is delayed while sampling, analysis and interpretation is undertaken; not too late as the pre-dredging sampling is to reflect conditions that will occur during the dredging activities).
- To not commence dredging in an area until the material has been cleared for disposal to Ancol CDF.
- Specific requirement to prevent any material other than “tested and cleared” JUFMP dredged material to be transported to and disposed of at Ancol CDF.

104. DKI BPLHD has responsibility to “receive” the information, and if in the unlikely event that pre-dredge testing identifies any B3 material, to participate in decision making on what further steps to take. The final decision however has to be that of the Ministry of Environment, and PMU and the relevant PIU and would also need to be involved in the discussions. The possible procedures and outcomes could include:
- More sampling and analysis to closer define the extent of elevated levels.
- Disposal to the PPLi hazardous waste facility.

**6.2.10 Solid Waste**

105. Solid Waste management is closely linked to the project in various ways:
It is well recognized that illegal disposal of solid waste to Jakarta’s waterways contributes to sediment build-up / loss of flow capacity and to unsightly conditions.

Authorities are involved in on-going programmes to remove (mostly) floating solid waste from the waterways (the relevant waterway owner / PIU) and from areas immediately surrounding the waterways (Sanitary Agency (Dinas Kebersihan) of DKI Jakarta)

Some local solid waste collection / sorting / transfer sites are close to the waterways

Communities frequently request an improved solid waste collection service in response to being encouraged to cease disposing solid waste to the waterways.

Solid waste will be incorporated in the material dredged from the waterways by the Construction Contractors.

106. The Construction Contractors will have responsibility for the management of dredging sites during the construction period (including 6 month maintenance period) and will be required to coordinate with the local community, DKI Jakarta “Cleaning Department” and relevant owner / PIU to manage solid waste within the designated dredging site. An additional specific responsibility will be to separate those large items from the dredged material before sediment transport to the Ancol CDF site. In specific terms the Construction Contractor will be required to ensure that the designated dredging site remains clean and free of solid waste during contract implementation and also that during this period no floating solid waste passes from the dredging site to external areas. While sorting to remove the large items is expected to occur within the dredging site it is the Construction Contractor’s responsibility to arrange for this and all other solid waste material to be managed in a non-offensive (odors, health, visual) and timely manner and to be transported to and disposed of at Jakarta’s Bantar Gebang TPA (landfill). Details of how individual contractors will manage this aspect will be required in the Construction Contractor’s Work Plans and ESMPs.

107. The effects on solid waste thus include:

- During the construction period JUFMP will facilitate maintaining clean waterways and surrounds.
- The “lost opportunity” that however undesirable, at present with some members of the community, using the waterways for solid waste disposal, either because of cost, convenience or lack of any realistic alternative.
- Some local collection / sorting transfer locations used by the community prior to either recycling or disposal to the TPA or elsewhere and which exist within what will be the Construction Contractor’s work sites will be disturbed. The Construction Contractor will be required to negotiate with the community and the operator of such sites for mutually acceptable alternative arrangements during the construction period.
- The on-site separation of large items of solid waste from dredged material that will either be recycled or be diverted to and disposed of at Bantar Gebang TPA.

108. In terms of influencing operations of Bantar Gebang TPA

- Solid waste associated with waterway and surrounds clean-up is solid waste that should otherwise go to Bantar Gebang TPA if the waste collection and disposal system, including community input was functioning effectively.
- At most, solid waste removed from the dredged material and diverted to Bantar Gebang TPA could be considered as an additional load for Bantar Gebang TPA. The estimated volume of solid waste to be removed and disposed of Bantar Gebang is about 95,000m3 over a 3 - 4 year duration. This will make up an insignificant percentage of normal loads being received at Bantar Gebang (currently between 5,000 – 6,000 tons per day, or about 20,000 to 24,000 m3 per day).

109. The direct responsibility for management is with the Construction Contractor’s working in association with the local communities and local authorities etc. The costs for solid waste
management will be included in contracts as a unit cost item of solid waste transported to and disposed of at the Bantar Gebang TPA

6.3 Post-Construction period

110. This period relates to the time after construction and the 6 months Construction Contractor’s maintenance period has been completed. Mostly the effects are the beneficial reduction in flooding that is expected to occur and consequential flow-on benefits to the community. The aspect of sustainable solid waste management is also identified and discussed.

111. From time to time ongoing maintenance dredging will be required to sustain the benefits of the JUFMP program. It is not possible to estimate the frequency of this as it depends on many factors including catchment management and actual weather / high flow conditions that occur.

6.3.1 Community

112. The effects on the community post-construction will be associated with:

- The perceived and actual effects of JUFMP, and especially benefits associated with increased flood mitigation and whether the project succeeded in appropriate levels of environmental and social management.
- The potential for improved (over current) solid waste management systems – see next sub-section.

113. As noted in Section 6.2.2 construction period monitoring of community perceptions will continue until the maintenance period following the dredging and transport. Thus additional post-construction period monitoring is not warranted.

6.3.2 Solid Waste and Maintenance dredging

114. The JUFMP project will have required a high standard of solid waste management associated with the period of dredging and immediate following 6 month maintenance period. While certain responsibilities will have been with the Construction Contractor, this will also have involved coordination and cooperation with the relevant waterway “owner” / PIU, the DKI Jakarta Sanitary Agency and the community.

115. Continuing sedimentation of the waterways is inevitable post-JUFMP dredging since there will continue to be sediment delivery and the very flat grades of the waterways limits self scouring for all but high flow periods. However, the prior (to JUFMP dredging) practice of significant inputs of solid waste that reduces flow capacity is expected to be much reduced as a result of the project, though not entirely prevented. Thus on-going maintenance dredging will be required.

116. The relevant “owner” of each waterway will be responsible for monitoring of sediment build-up / waterway profiles and the relationship of this to flow capacity. The timing for maintenance dredging will be balanced between not letting the situation deteriorate to the stage of significant increasing flooding and not undertaking very frequent and uneconomical dredging. Thus maintenance dredging will be on a much smaller scale than JUFMP dredging, both in terms of the amount of material to be removed as well as in the area to be dredged for future maintenance contracts. Therefore while similar effects to JUFMP dredging will be likely, the magnitude of effects will be much less. Mitigation and monitoring would likewise be similar, learning from the JUFMP experience and again with a focus on integrating operations via consultation with the community.

117. The responsibilities of JUFMP will not carry through to the post-construction period, though by providing a working model to the relevant long term stakeholders for the approximate 2 year
construction period it is likely that there will be long term improvements in solid waste management and maintenance dredging works of the project areas.
Appendix 1  Contractors’ Environment and Social Management Plan

Environmental and social management (ESM) is considered important by the project proponents (PMU/PIUs). The project has been subject to both Indonesia AMDAL processes and to World Bank assessment. In relation to ESM the Contractor must abide by:

- The relevant JUFMP AMDAL approved for the dredging sites.
- Any “Supplementary Report” or similar provided as part of the tendering / bidding documents.
- All social and environmental conditions in the Contract documents.
- All relevant laws, regulations, and policies regarding environmental and social matters in Jakarta.
- The Contractors Environmental and Social Management Plan (ESMP). This Appendix details requirements for two types of Contractor’s ESMP:
  - Contractor’s Preliminary ESMP, to be prepared and submitted as part of the bid / Tender.
  - Contractor’s Detailed ESMP, to be prepared and submitted along with the Contractor’s Detailed Work Plan within the time specified in Contract documents (nominally 30 days after Contract Award).
  - Both ESMP’s cover essentially the same aspects, the main difference being the amount of detail. Unless otherwise specified the term “Contractors ESMP’s” is inclusive of both the Preliminary and the Detailed ESMP.

The following identifies the minimum requirements for appropriate “Contractor ESM Plans.”

**Extension of responsibility.** Where the term “Contractor” is used below this shall refer to the main Contractor(s) and all sub-contractors, sub-sub-contractors etc. Regardless of whatever sub-contracting arrangements are in place the Contractor shall remain fully responsible to the Principal for implementation of sound environmental and social management. Furthermore, when nominating sub-contractors either in the bid or during Contract implementation to the Supervision Consultant, the Contractor shall provide written and signed evidence that the sub-contractor(s) have been made aware of project environmental and social arrangement requirements.

**Tender documents** will identify:

- Requirement for the bidder to prepare a “Preliminary Contractor Environmental and Social Management Plan” (ESMP) in parallel with the “Preliminary Work Plan” as part of the bidding process.
- Requirement for the successful contractor to prepare the “Contractor’s Detailed ESMP” as part of the Detailed Work Plan to be submitted within one month of Tender Award and to be approved by the Supervision Consultant.
- The Technical Bid shall include in the section on Corporate experience the following information:
  - Corporate policies related to environment, social responsibility and occupational health and safety
  - Records of implementation of these policies, including any external / independent audit of such implementation.
  - Copies of any awards or other recognition for "good" / "excellent" performance related to actual implementation of social or environmental management and monitoring on construction contracts in the previous 5 years.
  - A signed statement identifying any penalties incurred in the previous 5 years relating to environment and / or social and / or occupational health matters. The Principal
reserves the right to disqualify any organization that has been shown to have falsified such a statement.

- Examples of Construction of environmental, social and safety management and monitoring plans that have been specifically developed by the organization.
- a person nominated by the Contractor who shall have specific qualifications and practical experience of implementing ESM’s on similar Construction Contracts. This may be a nominated individual with 100% responsibility for ESM or alternatively the ESM duties may be shared with other duties (such as safety) provided that at least 50% of the time is available for ESM activities. Scoring shall be as identified in the section on staffing.
- The financial proposal shall include costs related to ESM for the Construction Contract as follows:
  - Costs associated with preparation of the “Contractor’s ESMPs” shall be included as part of any identified payment made in relation to the preparation of the Contractor’s Work Plan.
  - Other specific identified “environmental and social” items in the Cost Schedule
  - Without limitation, unit price costs shall include all other ESM costs associated with implementation of the “Contractor’s ESMP”, Temporary Construction Areas, ESM staffing costs, any penalties or charges imposed by government authorities, responding to complaints from the public and rectifying as necessary breaches of good ESM practice and / or the approved “Contractor ESMP”.

Environmental and social issues

The often interrelated environmental and social issues for which the Contractor would have direct responsibilities are described in the following. These aspects shall also be read in conjunction with the AMDALs, Supplementary Reports” etc.: 

Community interaction

This is a general but overarching issue addressing such aspects as noise and vibration, traffic, odor / smell, appearance / aesthetics, worksite sanitation, dredged sediment “spillage” to roads and public areas, public safety, physical dislocation that have been identified as issues of concern to the community. Further information on matters raised during community consultation to date is available from the Principal. Specific objectives / performance requirements are set out in other following issues. Bidders are encouraged to identify what other aspects they might address or undertake to further minimize adverse “community disturbance”. Additionally the Tenderer and Contractor shall identify in the “Contractor ESMPs” how they will participate in the public grievance / dispute resolution arrangements for the project. Furthermore:

- The bidder is encouraged to engage in a community consultative process during bidding to ensure that what is being proposed in the Contractors Preliminary ESMP aligns with the interests of the local community. This process is at the bidder’s expense.
- On Contract award the successful Contractor is required to engage in a community consultative process as part of the development of the Contractor’s Detailed Work Plan and Detailed ESMP. A line item in the cost schedule allows for a community meeting associated with this process.
- During implementation of the Contract the Contractor is required to engage in further community meetings, with a line item in the Contract to allow for these.

Temporary construction areas

The design drawings clearly define the limits of permanent works which are mainly associated with the canal / drain (or waduk), and as appropriate, embankment works; in a few locations structures such as pumps, gates etc. are also included. As noted elsewhere, the Contractor shall set out these
areas by detailed survey plan prior to any other activity on the site. Any of these permanent areas may also be used for construction related purposes, provided that necessary environmental and social safeguards are implemented.

It is envisaged that the Contractor may wish or need to use additional areas for such temporary purposes as, including but not limited to, storage yards, construction offices and yards etc. These areas shall be defined as “Temporary construction areas”.

The responsibility for identifying “Temporary Construction Areas” is with the Tenderer and Contractor and shall form part of the “Contractor ESM Plans” in terms of clear identification of the areas and the expected timing and duration of use of each site. Selection of areas must give consideration to social and environmental factors and the “Contractor ESMPs” must define specific environmental and social management associated with each and every Temporary Construction Area.

**Noise and vibration**
Noise and vibration have been raised during various community consultation activities as “items of interest.” Measurements as part of the AMDAL identifies that noise and vibration do not always meet local standards. It is also noted that standards do not necessarily account for culturally sensitive situations such as prayer times.

The Tenderer and Contractor shall identify within the “Contractor ESMPs” details of how the Contractor shall manage and monitor noise and vibration at the site. Costs in relation to, for example, low-noise generators or noise shields shall be considered as part of normal equipment and / or site establishment costs.

The Engineer, Principal or others may at their own expense undertake noise and / or vibration monitoring at any time during execution of the Contract without necessarily informing the Contractor in advance that such measurements will be taken. If in the opinion of the Engineer, based on either such measurements or justifiable complaints from the public and / or authorities, that excessive noise or vibration is occurring, the Engineer may direct the Contractor to comply with relevant standards and with commitments made in the “Contractor ESMPs” without any payments being made to accord with such compliance.

**Traffic**
The AMDAL and comments by the public have identified traffic as an issue in relation to:

- Congestion
- Source of air emissions
- As the transporter of dredged material, the source of potential spillage (see later)
- Damage to roads.

All Contractor Traffic shall be required (at no additional cost to the Contract) to comply with all regulations and requirements with respect to traffic, including but not necessarily limited to restricted hours of operation, signage, and holding of valid emission testing certificates.

The Tenderer shall prepare a Preliminary Traffic Management Plan giving consideration to aspects raised in the AMDAL and Supplementary Report. It is emphasised that this Plan addresses social issues as well as the more standard issues such as truck size, routes etc.
The Contractor shall prepare a detailed Traffic Management Plan for the Contract and have this approved by the Supervision Consultant and then by the relevant authorities. This Traffic Management Plan shall form part of the Contractor Detailed Work Plan and ESMP proposed methods of minimizing the potential adverse effects of traffic. Costs related to preparation and implementation of the Traffic Management Plan are built into unit costs associated with transport of dredged material and transport of solid waste as appropriate.

**Odor / smell**
The AMDAL and comments by the public have identified odor as an issue in relation to odors arising from (especially) from recently dredged material.

The Tenderer and Contractor shall identify within the “Contractor ESMPs” proposed methods of minimizing odors, together with performance standards that can be measured for compliance by the Supervision Consultant. Costs associated with operational activities such as covering material, limiting the period of exposure, etc, as well as Contractor-initiated monitoring shall be built into unit costs.

**Appearance / aesthetics**
Given that dredging and associated operations are largely in built-up and occupied urban areas, the Tenderer and Contractor shall specifically identify proposed methods of reducing any adverse appearance and aesthetics in the “Contractor ESM Plans”. Note that this may also interact with public safety issues.

**Water quality**
While it is recognized that water quality in the project area is poor, the AMDAL and community expectations are that the project will not cause additional significant deterioration. Potential causes of further deterioration could arise from one or more of the following: dewatering of dredged sediment prior to transport, spilt fuels, oil and grease, improper sanitation, untreated vehicle and site washdown entering the drain, aggravation of surface floating solid waste, excessive disturbance of sediment whilst still under water.

The Tenderer and Contractor shall identify within the “Contractor ESMPs” proposed methods of protecting water quality. Costs associated with set up and operational activities including any Contractor-initiated monitoring shall be built into unit costs.

The Supervision Consultant (on behalf of project proponent), DKI BPLHD or others may at their own expense undertake water quality monitoring at any time during execution of the Contract without necessarily informing the Contractor in advance that such measurements will be taken. If in the opinion of the Engineer, based on either such measurements or justifiable complaints from the public and / or authorities, that excessive water pollution is occurring the Supervision Consultant may direct the Contractor to comply with relevant standards and with commitments made in the “Contractor ESMPs” without any payments being made to accord with such compliance.

**Worksite sanitation**
The Tenderer and Contractor shall identify within the “Contractor ESMPs” proposed sanitation facilities and practices to be undertaken throughout the whole permanent and Temporary Construction Areas. Costs associated with set up and operational activities shall be built into unit costs.
Dredged sediment "spillage" to roads and public areas
Based on previous operations, the community has expressed concerns regarding spillage of dredged material from transport trucks onto roads leading to the disposal site at Ancol. The AMDAL made specific mention of this factor, and the approved RPL / RKL (Environmental management and monitoring plans) requires that measures be undertaken to effectively prevent any spillage, as well as for a monitoring program to ensure that spillage is not occurring. In the event that spillage does occur procedures must be in place to enable rapid clean up of the spillage. It is recognised that there are various methods by which these requirements could be achieved.

In addition to these requirements special environmental conditions pertain to the Ancol reclamation / disposal site. These include that all vehicles leaving the site shall be required to pass through a vehicle washing facility. Because of multiple contractors using the Ancol site, a common vehicle washing facility shall be developed and operated by the entity managing the Ancol CDF with each Contractor required to direct all vehicles through this facility. There shall be no charge for the use of the facility, but there shall be no claim for any delays occasioned by using the facility. Should the Contractor wish to establish and operate a dedicated facility for sole use by the Contractor, plans and details shall be provided to the Engineer for approval. No additional payments will be made for such independent action by the Contractor.

The Tenderer and Contractor shall identify within the “Contractor ESMPs” proposed methods to prevent any spillage, Contractor self-monitoring and procedures that will be adopted to enable rapid clean up of any spillage that does occur, whether identified by the Contractor or by the Engineer. Costs associated with this shall be built into unit costs.

Notwithstanding the preceding paragraph, the Supervision Consultant may direct the Contractor to undertake additional or alternative clean-up procedures if spillage is significant and / or frequent and / or causing harm to the local community. No additional costs will be paid to the Contractor for such additional or alternative clean-up procedures. Furthermore, should the Contractor not undertake such procedures in a timely manner as directed by the Engineer, the Supervision Consultant at his discretion may call in another party to undertake the clean up, and the full cost of this shall become a charge against the Contractor.

Public safety
The project has the potential for significant public safety issues; construction areas are within densely populated urban areas, operations involve heavy machinery and movement of materials and equipment and many operations will be undertaken during night hours. The Tenderer and Contractor shall identify within the “Contractor ESMPs” proposed methods to maintain public safety. Associated costs shall be built into unit costs.

Notwithstanding the preceding paragraph the Supervision Consultant may direct the Contractor to undertake additional safety measures if an unsafe situation occurs. No additional costs will be paid to the Contractor for such additional safety measures. Furthermore, should the Contractor not undertake such procedures in a timely manner as directed by the Supervision Consultant, the Supervision Consultant at his discretion may call in another party to implement additional safety measures and or direct the dredging and transport operations to cease; and the full cost of this shall become a charge against the Contractor and the Contractor shall have no claim arising from the enforced cessation of operations.

Public grievance and dispute resolution
A key requirement of the Principal and of the project funders (the World Bank) is that there be suitable public grievance and dispute resolution mechanisms in place. Overall JUFMP will have
established project public grievance mechanisms by the time of Construction Contract signing, specifically in relation to resettlement and compensation on project “permanent areas” and also in relation to enabling local communities to bring to the attention of local institutions and authorities comments, including complaints, about project related activities. The majority of such comments / complaints have been and are expected to continue to be related to environmental and social issues. In relation to resettlement and compensation as discussed previously, the Contractor will have:

- No involvement at all in relation to “permanent” works areas
- Full involvement in relation to “Temporary Construction Areas”

The Tenderer and Contractor shall identify within the “Contractor ESMPs” proposed methods and arrangements for handling public grievances and dispute resolution for environmental and social issues (other than resettlement and compensation). Options available to the Contractor range from

- “complete reliance on other project public grievance and dispute resolution mechanisms”,
- joint working together
- “fully independent Contractor public grievance and dispute resolution mechanism”.

In deciding which approach to use, it must be clearly understood that the Principal, via the Supervision Consultant, is required and committed to consider all comments (and complaints) made to the overall project public grievance and dispute resolution mechanisms. Whichever approach is used, all Contractor-associated costs to set up and maintain shall be part of unit rates for the project.

Local employment
In common with proposed projects the local community has expressed interest in employment opportunities. The Tenderer and Contractor shall identify within the “Contractor ESMPs” all realistic employment opportunities that will be available to the local community, giving the numbers of available jobs by category, the qualifications and experience necessary to fulfil those jobs, the duration of employment available, and steps that will be taken to ensure preferential employment from the local community.

Other factors
Successful implementation of ESM requires more than just identification of measures that are proposed to be undertaken. It is necessary for example that there is human resource support in terms of aspects such as specific staffing, identified chains of responsibility and a workforce that is both aware of issues and capable (often with some training) of implementation. The Tenderer and Contractor shall identify within the “Contractor ESMPs” details of such aspects. It is noted that the bid itself requires identification of a suitably qualified person with practical ESM experience who will be required to devote at least 50% of available time for ESM.
## Appendix 2  JUFMP Phase 1 Environment Management and Monitoring Matrix

### Table A - 1  JUFMP Phase 1 EMP Matrix

The following matrix summarises the environmental and social management and monitoring for the JUFMP Phase 1 Sub-projects. Additional detail is found in the main report. This complements but specifically does not override the RPL / RKL of the JUFMP Phase 1 AMDAL formally approved by DKI BPLHD / AMDAL Commission in late March 2010.

<table>
<thead>
<tr>
<th>Period</th>
<th>Management</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect</td>
<td>Description</td>
<td>Responsibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PMU (via PC)</td>
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<td></td>
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<td>PMU (via PC)</td>
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### Pre-construction

- * Enable effective & integrated environmental and social management
  - 1 Ensure alignment of AMDAL, Engineering Design Finalisation, Contract Documentation and project institutional arrangements
  - 2 Produce supplementary environmental / social reports as required
  - 3 Analyze environmental and social management options for various issues
- * Community perception
  - 1 Community consultations, including FGDs

### Construction

- * Community perception
  - 1 Contract required meetings between Construction Contractor & community – initially during development of

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<thead>
<tr>
<th>Effect</th>
<th>Description</th>
<th>Responsibility</th>
<th>Cost</th>
<th>Description</th>
<th>Responsibility</th>
<th>Cost</th>
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<tbody>
<tr>
<td></td>
<td>PC</td>
<td>PMU (via PC)</td>
<td>PC</td>
<td>Receipt of reports</td>
<td>PMU</td>
<td>PMU</td>
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<tr>
<td></td>
<td>PC</td>
<td>PMU (via PC)</td>
<td>PC</td>
<td>Receipt of reports</td>
<td>PMU</td>
<td>PMU</td>
</tr>
<tr>
<td></td>
<td>PC</td>
<td>PMU (via PC)</td>
<td>PC</td>
<td>Questionnaires &amp; reporting</td>
<td>PMU</td>
<td>PMU</td>
</tr>
<tr>
<td></td>
<td>CC</td>
<td>CC</td>
<td>CC</td>
<td>Receive reports</td>
<td>SC</td>
<td>SC</td>
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Est. $1000
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<tr>
<th>Period Effect</th>
<th>Management</th>
<th>Responsibility ¹</th>
<th>Cost ¹</th>
<th>Monitoring</th>
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<tbody>
<tr>
<td></td>
<td>Description</td>
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<td></td>
<td>Description</td>
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<tr>
<td></td>
<td>Contractors Detailed ESMP, then at specified intervals thereafter</td>
<td>SC</td>
<td>/ site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Ability for on-going information and complaints – establish &amp; operate POSKO</td>
<td>SC</td>
<td>Est. $10000-20000 per site</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SC</td>
<td>2 Activity monthly reporting</td>
<td>PMU</td>
</tr>
<tr>
<td></td>
<td>3 Series of questionnaires and interviews with community.</td>
<td>SC</td>
<td>Est. $1000 per site</td>
<td>Reporting to PMU / PIUs; plus feedback to Construction Contractor</td>
</tr>
<tr>
<td></td>
<td>4 Environment and social management closely integrated with Construction activities</td>
<td>CC</td>
<td>Contractor ESMP as adjunct to Contractor Work Plans prepared by Construction Contractor to align with AMDAL, supplementary report etc. – After required community consultation including in relation to access &amp; work area locations.</td>
<td>CC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CC</td>
<td>2 Requirement for instruction to ad training as necessary of staff, sub-Contractors etc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 Local employment (desired by community)</td>
<td>CC</td>
<td>Contractor encouraged to employ local persons</td>
<td>CC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CC</td>
<td></td>
<td>SC</td>
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*Environment and social management closely integrated with Construction activities.*
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<th>Period</th>
<th>Management</th>
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<th>Cost</th>
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<tr>
<td>Effect</td>
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<td>Responsibility</td>
<td>Cost</td>
<td>Description</td>
<td>Responsibility</td>
<td>Cost</td>
</tr>
<tr>
<td></td>
<td>* Spillage dredged material</td>
<td>1 Methods detailed in Construction Contractor ESMP; plus worker training</td>
<td>CC</td>
<td>CC</td>
<td>Plan to be approved</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>2 Specified clean-up of spilled material - including by others if Construction Contractor does not clean-up as and when directed.</td>
<td>SC</td>
<td>SC</td>
<td>Visual monitoring, receipt of complaints</td>
<td>PMU</td>
<td>PMU</td>
</tr>
<tr>
<td></td>
<td>* Air Quality (at times background)</td>
<td>1 Vehicles to have emission compliance certificates</td>
<td>CC</td>
<td>CC</td>
<td>Compliance checking</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>2 Dust – prevention by, for example, spillage control, clean-up</td>
<td>CC</td>
<td>CC</td>
<td>Visual monitoring, receipt of complaints</td>
<td>SC</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>3 Odour – minimise exposure amount / duration; agreement with community</td>
<td>CC</td>
<td>CC</td>
<td>On site manual monitoring, receipt of complaints.</td>
<td>SC</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>* Noise (note background often exceeds standards)</td>
<td>1 Agreement to be reached with local community, especially in relation to timing of activities and noise sensitive areas.</td>
<td>CC</td>
<td>CC</td>
<td>Review Plan &amp; Consultation</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>2 Worker training; As necessary silenced equipment,</td>
<td>CC</td>
<td>CC</td>
<td>On site manual monitoring, receipt of complaints.</td>
<td>SC</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>* Traffic</td>
<td>1 Produce detailed Traffic Management Plan (TMP) as part of Contractor Work Plan and ESMP – to include technical</td>
<td>CC</td>
<td>CC</td>
<td>Review plan prior to submission to authorities. Receive from Construction</td>
<td>SC</td>
</tr>
</tbody>
</table>

* See other sections for...
<table>
<thead>
<tr>
<th>Period Effect</th>
<th>Management</th>
<th>Monitoring</th>
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</table>
| **consequential effects**<br>
*Such as noise, emissions, spillage*
| aspects, legislation / regulation, and after required community consultation. Have plan approved by local authorities. Training of truck operators |
| | Contractor. Copy of fully approved plan. |
| **2 Maintain operational periods / local access / routes as per TMP** |
| CC | Visual monitoring, receipt of complaints |
| **3 Integration with all other JUFMP transport to prevent congestion near Ancol** |
| CC, SC | Visual monitoring and specific monthly counts, receipt of complaints |
| **1 Pre and post dredging monitoring to determine whether B3. This required by BPLHD / AMDAL Commission with approval for Phase 1 AMDAL (see 4 below if sediment quality testing does identify B3 material)** |
| SC | Lab reports. Clearance to dredge & transport – or on-hold |
| **2 Requirement to dredge and transport sediment only after material cleared.** |
| CC | Instructions via formal reports |
| **3 Specific prohibition to pick up, store, transport or otherwise handle any solid material other than “cleared” JUFMP dredged material without express** |
| CC | Spot checks, receipt of complaints |

* Sediment quality (based on preventing B3 being disposed of at Ancol CDF*
<table>
<thead>
<tr>
<th><strong>Period</strong></th>
<th><strong>Management</strong></th>
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<tbody>
<tr>
<td>Effect</td>
<td>Description</td>
</tr>
<tr>
<td>* Sediment quality</td>
<td>* Sediment quality (only if testing under 1 above identifies that material is B3)</td>
</tr>
<tr>
<td></td>
<td>4i Decision required on what further investigations required and ultimate management that would be applied</td>
</tr>
<tr>
<td></td>
<td>4ii Possible resultant decision to either dispose of to Ancol (perhaps with special conditions) or dispose of to PPLi hazardous waste site</td>
</tr>
<tr>
<td>* Solid Waste</td>
<td>1 General requirement to keep site and surrounds clean; in consultation / agreement with authorities and community. Details to be set in Work Plan and ESMP.</td>
</tr>
<tr>
<td></td>
<td>2 Separation of large items from dredged material before transport to Ancol</td>
</tr>
<tr>
<td></td>
<td>3 Arrange for transport and disposal of nett solid waste i.e. after recyclables</td>
</tr>
<tr>
<td>Period</td>
<td>Effect</td>
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<tr>
<td>Post-Construction</td>
<td>* Environmental reporting</td>
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<tr>
<td></td>
<td>* Reduced flood heights</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Community benefits</td>
</tr>
<tr>
<td>Period Effect</td>
<td>Management Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>* Solid Waste management</td>
<td>Sustainable solid waste management systems in place that avoid need to use waterways and surrounds as part of disposal option</td>
</tr>
<tr>
<td>* Maintenance dredging</td>
<td>Determine need for future maintenance dredging</td>
</tr>
<tr>
<td></td>
<td>Similar as per JUFMP dredging, but modified to benefit from lessons learned and considering smaller scale of maintenance dredging</td>
</tr>
</tbody>
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Note 1:
Responsibility (Prime responsibility only)

PMU = Project Management Unit
PIU = Project Implementation Unit
PC = Project preparation consultants
CC = JUFMP Construction Contractor
SC = JUFMP Supervision Consultant
BPLHD = Environmental Management Agency of Jakarta Provincial Government
KLH = National / Central Ministry of Environment