

Nam Theun 2 Hydroelectric Project

Project Implementation Plan

Part D: Compliance with HCCEMMP

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1. Obligations and Documentation

The contractual obligations of the Head Contractor regarding environmental issues are set out in the Owner's requirements (Section 14 of Volume 1 and Appendix A1-12).

These obligations include the preparation of the HCCEMMP for the Preliminary Construction Activities and the Main Construction Activities (HCCEMMP PCA/ MCA) (the "**HCC Documentation**").

The HCC Documentation, released in its preliminary draft form in April 2004 and in its final version in April 2005, describes how the Head Contractor and Construction Contractors (including the sub-contractors) will implement an Environmental Management System to meet the specified contractual, regulatory and statutory requirements.

The HCC Documentation, released in its version 1 in April 2005, consists of 3 parts:

- Part A is the Master EMMP which presents the general context of the Plan, the organization and procedures;
- Part B presents the 19 sub-plans (listed in Schedule 1 to this Part D) which indicate the detailed measures to implement for complying with the Owner Requirements; and
- Part C is made of the Site Specific Environmental Plans (SSEP, listed in Schedule 2 to this Part D together with the dates for submission of the first draft) that describe for each of the approximately 40 construction sites the site specific measures to be implemented for each phase of construction. This list of SSEP will evolve in the future based on the breakdown of activities per site.

The HCC Documentation will go through a process of regular revisions (minimum of one annual audit of the HCC's EMS and Parts A and B of the HCCEMMP) during the construction phase. The LTA will be informed of any proposed changes to Parts A and B of the HCC EMMP.

The SSEPs (Part C of the HCCEMMP) are to be submitted not later than one month in advance of construction activities for review and approval by NTPC via the EMO for each site and stage of construction activities per site. An inventory list of all SSEPs will be made available regularly by NTPC to the Lenders Technical Advisor and each SSEP

will be made available to the Lenders Technical Advisor if it makes a request to review such documents.

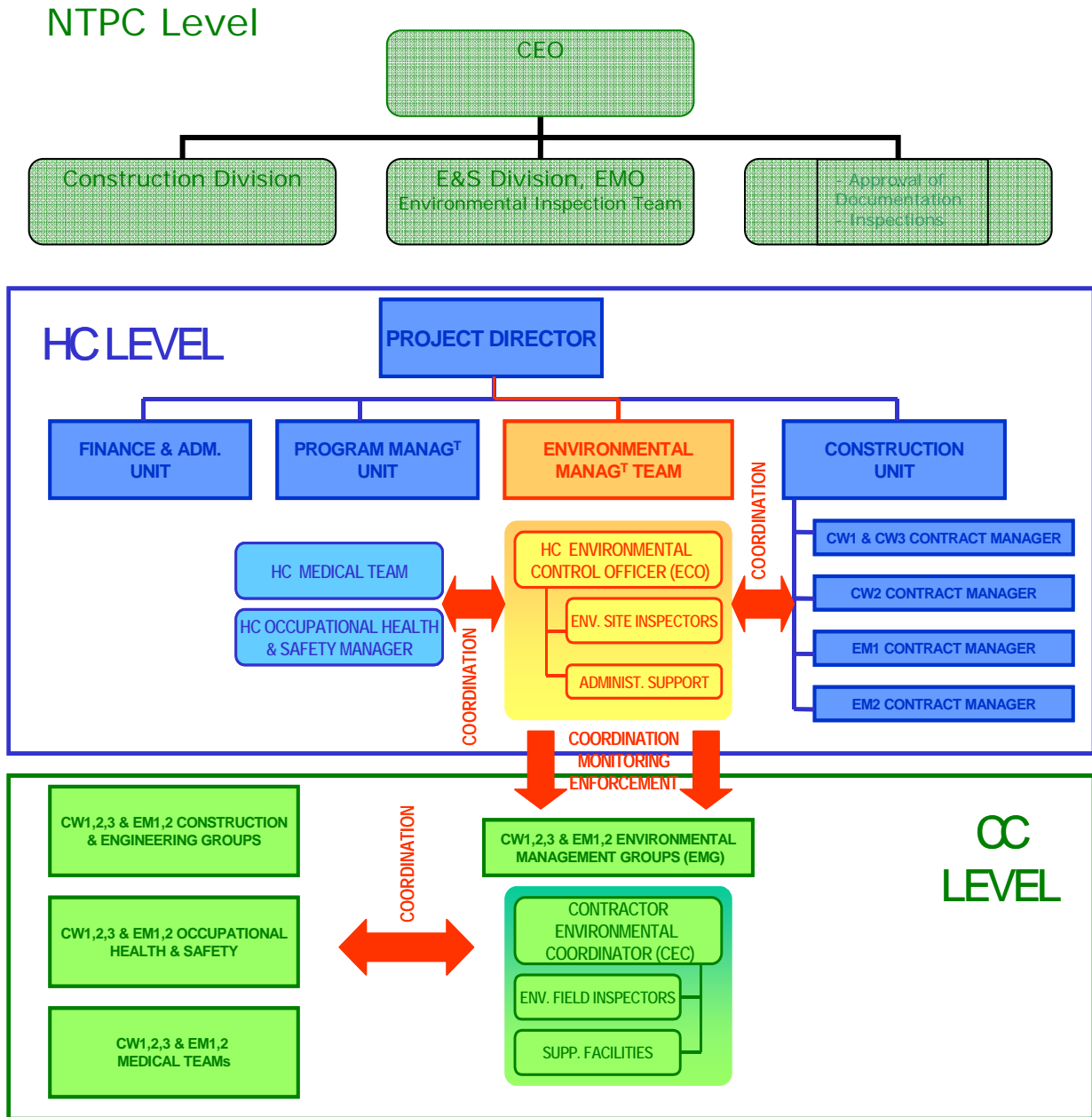
The documentation will be reviewed by the EMO of NTPC and comments are transmitted to the Head Contractor for incorporation into a new version of the SSEP.

2. Organisation

Three levels of organization are set up by NTPC, the Head Contractor and the Construction Contractors.

- EMO: Obligations include: (1) review and approve/ comment the environmental documentation (HCCEMMP and the various SSEPs) prepared under the responsibility of the Head Contractor, (2) monitor/ inspect their implementation on the ground, raise non-compliance asking for corrective measures to be taken.
- HC Environmental Management Team (HC EMT): Obligations include the provision of coordination and supervision for all environmental-related activities during construction, and to report regularly to the HC Project Director.
- The CC Environmental Management Group (CC EMG): Obligations include provision of resources for, and effective implementation of, all measures which constitute the HCCEMMP and sub-plans. The CC EMG has to pass to the sub-contractors that it employs the environmental obligations of NTPC.

The HC and CC levels are presented in the following figure:



Resources of the EMO allocated to the environmental aspects of construction activities include the Manager of the EMO, assisted with an environmental engineer, leading a team of 2-3 environmental inspectors who spend most of their time on the site.

Resources of the HC EMT include the Environmental Control Officer (ECO) and two Environmental Site Inspectors (ESI).

Resources of the Construction Contractors are made of one Contractor Environmental Coordinator (CEC) assisted by Contractor Environmental Field Inspectors (EFI).

3. Compliance Monitoring and inspections

The objective of construction environmental monitoring activities is to ensure that mitigation measures listed in the HCCEMMP are implemented and are effective in minimizing or preventing environmental impacts.

At CC and sub-contractor level, monitoring ensures on a daily basis that mitigation measures are fully implemented with construction activities, and that results observed comply with the contractual obligations.

At Head Contractor level, routine inspections ensure that monitoring results provided by the CC are true, correct and comprehensive, to provide the necessary environmental coordination and interface between the CC, and to provide NTPC with a comprehensive picture of the environmental situation and efforts at site level.

At NTPC level, monthly joint inspections with the HC and regular independent inspections (weekly) ensure that the SSEP submitted by the HC are fully implemented on site, that construction activities are undertaken as per the contractual obligations (Owner Requirements and HCCEMMP), that environmental impacts of construction activities are managed properly, and that NTPC is properly informed of environmental issues.

4. Non-compliance detection, correction and prevention

The range of any non-compliance by the Head Contractor with environmental obligations in the HCCEMMP is categorized into Site Observation Notices and Non-Compliance Reports (NCR) (from level 1 to level 3).

Site Observation Notices are issued on site, and apply to a situation not consistent with HCCEMMP requirement, but believe to be minor in term of threat to the environment, and/or easily remedied. Corrective actions have to be taken immediately. Site Observation Notices can be upgraded to NCR (see below) 1 if they are not addressed properly.

Non-Compliance Level I applies to a situation not consistent with HCCEMMP requirements, but not believed to represent an immediate or severe threat to man or to the environment. Repeated Level I concerns may become Level II concerns if left unattended. Level I situations will typically be addressed by EFI and ESI with construction personnel by normal coordination and routine communications (e.g. discussion with the Contractor's site construction supervisor). Corrective action should be agreed to and implemented as expeditiously as practical. Formal communications will typically be limited to routine daily and weekly reports directed to the CEC or the ECO.

Non Compliance Level II applies to a situation that has not yet resulted in clearly identified damage or irreversible impact, but which potential significance requires expeditious corrective action and site-specific attention to prevent severe effects. Repeated Level II concerns may become Level III concerns if left unattended. Level II events are to be reported to the HC ECO the same day as identified. The ECO will notify the HC PD within three days, as practical, with suggested corrective action. Corrective action should be agreed to and initiated as expeditiously as practical, typically within the week following initial identification of the issue requiring attention. Special follow-up of corrective measures is required from the EFI and ESI concerned.

Non Compliance Level III relates to a situation, typically including observed significant damage on the environment or a reasonable expectation of very severe impending damage. Intentional disregard of specific prohibitions is also classified as a Level III concern. Level III concerns are to be reported to the ECO and by the ECO to the HC PD the same day they are identified. The HC PD will notify and send copy to NTPC (EMO) of all Level III concerns the same day he is notified. Corrective action should be agreed to and initiated within three days of original observation unless special circumstances require a longer period. Although a specific decision/response time frame may not be

achievable in all instances, the general intent will be to define and initiate action to minimize adverse effects and/or curtail adverse effects as expeditiously as practical. An adequate response to a Level III concern will include the diligent involvement of the HC PD. If necessary, the HC Project Director or his delegate will request the concerned Contractor Construction Manager to halt specific activities in order to protect resources while corrective actions are implemented. Under similar circumstances, the CC CEC has also the authority to halt construction activities carried out under his construction company responsibility.

A register of all Non-Compliance situations is kept with the HC, and shared with the EMO of NTPC, to ensure that all NCR are handled promptly, to identify need for training of CC/Sub-Contractors, and to measure the efficiency of the corrective measures used.

Schedule 1

HCC Documentation Sub-Plans

1. Erosion and Sediment Control Sub-plan.
2. Spoil Disposal Planning and Management Sub-plan.
3. Quarry Management Sub-plan.
4. Water Quality Monitoring Sub-plan.
5. Chemical Waste/ Spillage Management Sub-plan.
6. Emergency Plan for Hazardous Materials Sub-plan.
7. Emissions and dust control Sub-plan.
8. Noise Control Sub-plan.
9. Physical Cultural Resources Plan.
10. Landscaping and Re-vegetation Sub-plan.
11. Vegetation Clearing Sub-plan.
12. Waste Management Sub-plan.
13. Reservoir Impoundment Management Sub-plan.
14. Environmental Training for Construction Workers Sub-plan.
15. On-site Traffic and Access Management Sub-plan.
16. Explosive Ordnance Survey and Disposal Plan.
17. Construction Work Camps and Spontaneous Settlement Areas Sub-plan.
18. Manual of Best Practices in Site Management of Environmental Matters.
19. Project Staff Health Sub-program.

Schedule 2**Site Specific Environmental Plans**

SSEP	<u>Date for Submission of first version</u>
1. SSEP Phu Pha Phen Quarry	21/06/04
2. SSEP Phu Pha Phen Quarry Access Road from Laksao	21/06/04
3. SSEP Dam site (and diversion tunnel)	16/12/04
4. SSEP Dam Construction Camp	21/06/04
5. SSEP Temporary and New Bridges at Ban Thalang (including Camp)	27/12/04
6. SSEP Oudomsouk Construction Camp (including LTT Camp in revision B)	21/06/04
7. SSEP Intake and Upstream Part of the Headrace Channel	27/12/04
8. SSEP Downstream Part of the Headrace Channel	01/08/05
9. SSEP Surge Shaft and Adit Access Roads and Platforms	30/12/04
10. SSEP Power House, Switchyard, Tailrace and Diversion of Nam Khatang	21/06/04
11. SSEP Platform N°4 BIS	29/01/05
12. SSEP Residence Nam Theun	21/06/04
13. SSEP Main Camp (Gnommalat)	21/06/04
14. SSEP Ban Phatoung Quarry	27/12/04
15. SSEP Road Ban Phon Sa-ard to Dam site	03/11/04
16. SSEP Road Nam Nian to Dam Site	27/12/04
17. SSEP upgrade Road Nam Nian to Ban Thalang	12/11/04
18. SSEP upgrade Road Ban Thalang to Oudomsouk	06/11/04
19. SSEP Road Oudomsouk to Power House	12/11/04
20. SSEP upgrade Road Thakhek to Power House	21/06/04
21. SSEP New Road Nam Nian to Oudomsouk	01/08/05
22. SSEP Saddle Dam 12B	01/05/05
23. SSEPs Saddle Dams 1 -to 11 and 13 to 15 including Access Road - (Minimum 2 SSEPs: one for 13,14,15 and one for 1 to 11)	Between 01/08/05 and 01/08/06
24. SSEP Regulating Dam and Spoil Disposal 5	01/07/05
25. SSEP Regulating Pond	01/07/06
26. SSEP Tunnel for Downstream Channel	31/03/05

27. SSEPs Downstream Channel - (4 separate SSEPs, including Ban Itak Crossing, Siphon Construction and Oxygenation Weir)	Between 01/08/05 and 01/01/06
28. SSEP Access Roads for lines (Number of SSEPs to be defined)	01/09/06
29. SSEP Line 115 kV	01/09/06
30. SSEP Line 500 kV (Number of SSEPs to be defined)	01/09/06
31. SSEP Crossing Mekong	01/09/06
32. SSEP EM Dam site	01/05/07
33. SSEP EM Switchyard	01/08/06
34. SSEP EM Power House	01/04/06
35. SSEP EM Intake	01/05/06