MUTRAP
EU - VIETNAM
EUROPEAN TRADE POLICY AND INVESTMENT SUPPORT PROJECT

REPORT

Guidelines for Post-EIA Monitoring

ACTIVITY CODE: INVEN-8

"Improving the monitoring of Environmental Impact Assessment Reports"

Version: final draft

Ha Noi, 29 Dec 2014

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This document has been prepared with financial assistance from the Commission of the European Union. The views expressed herein are those of the author and therefore in no way reflect the official opinion of the Commission nor the Ministry of Industry and Trade

Table of contents

EXECUTIVE SUMMARY

The Ministry of Natural Resources and Environment (MONRE) of the Socialist Republic of Vietnam (Vietnam) has requested assistance from the European Trade Policy and Investment Support Project (EU-MUTRAP) in order to:

- harmonise its draft guidelines on post-Environmental Impact Assessment (EIA) monitoring with the procedures generally considered best practice in the international community;
- ensure that the resulting guidelines address any weaknesses in the Vietnamese framework for post-EIA monitoring, which may have become evident since the draft guidelines were originally formulated.

This report is based upon the earlier report of this Task, entitled "Preliminary Analysis of Concordance" (3rd September 2014), and upon the responses to surveys undertaken by the team. That report addressed among other things the question of whether new guidelines for post-EIA monitoring could usefully be developed from the existing guidelines, or whether it would be preferable to develop new guidelines from scratch. The conclusion of that report, based upon the analysis that it conducted, and now confirmed by the findings of the survey work undertaken by the PMU experts, is that:

- the entire post-EIA process is not properly appreciated and understood in Vietnam,
- and that in consequence new guidelines are required that explains and strengthens that understanding, thereby providing the foundation for more specific guidelines in the future.

The purpose of this report, therefore, is to provide guidance on the fundamental concepts of post-EIA monitoring: why it is needed; how to ensure that it has a good foundation; how to ensure that the processes to be monitored actually achieve what they set out to achieve in terms of environmental protection; and to monitor those processes in order to know whether the EIA process as a whole is actually achieving the environmental targets for which it is intended. It does this by setting out:

(a) Procedural objectives for post-EIA monitoring.
(b) For each procedural objective: The specific actions that the person or institution responsible would need to complete in order to achieve the objective.

(c) For each specific action:

- A description of the action;
- The timing of the action;
- Responsibility for the action;
- The objectively verifiable indicator(s) that MONRE will use as the basis for determining whether or not the action has been completed;
- The criterion (i.e. logical test) or criteria that MONRE will apply to the objectively verifiable indicator(s) in order to assess compliance;
- Responsibility for checking that indicators comply with the applicable criteria;
- Where appropriate, a description of the action to be taken in case of:

(a) Compliance

(b) Non-compliance

At each stage, this report provides a justification for the requirement that is described, also one or more guiding principles that need to be considered when addressing the requirement. In this way the report will help to engender a better understanding of EIA as a whole and its role in bringing about genuine improvements to Vietnam's environment.

As already noted the surveys that have been conducted by the Vietnamese experts reveal one issue that needs to be addressed as a priority. It has become apparent that the DONREs are failing to understand the relevance of post-EIA monitoring, because they perceive EIA to be the fulfilment of an administrative requirement rather than an instrument for the implementation of environmental protection policy. This may be due in part to the fact that Vietnamese law requires EIA for many more projects than can be addressed by the capacity available in the country; in consequence it is difficult to generate any enthusiasm for modifying procedures in a way that might place additional workload upon the regulatory authorities. The key to moving forward would be to introduce a screening step into the EIA process, ensuring that the requirement for EIA is limited to as many projects over a certain size as can be addressed by the available institutional capacity. The principles involved are exactly the same as those of the European Union's directives on environmental assessment, noting that the cut-off points would need to be modified in order to match the resulting administrative demand to the capacity actually available in Vietnam. This would need to be the subject of a separate study.

The earlier report notes that in order for EIA as a whole to function in Vietnam, there needs to be a change of social attitude towards environmental protection: the acceptance of personal responsibility for protecting the environment needs to be an element of what society expects from the individual in order to maintain social harmony. These guidelines cannot address this need directly, but it may be possible to adapt the way in which the guidelines are applied in order to encourage this evolution in social attitudes. For example, the checks that this report proposes should be conducted before post-EIA implementation begins are intended to encourage self-monitoring by stakeholders as far as this is possible, in order to minimise any additional administrative burden upon regulatory authorities.

In conclusion, we have taken the view that there is no point in strengthening one particular aspect of a process if the effectiveness of that depends upon other aspects that we do not address and which our inquiries indicate to be in need of strengthening. Accordingly these guidelines address the strengthening of post-EIA monitoring in as holistic a manner as possible, based upon what we know to be the weak points of EIA implementation in Vietnam.

I. Introduction

The Ministry of Natural Resources and Environment (MONRE) of the Socialist Republic of Vietnam (Vietnam) has developed a draft set of guidelines[1] (2010) relating to the process of post-EIA monitoring, in conformity with Decree 21/2008/NĐ-CP and Circular 05/2008/TT-BTNMT. The primary instrument for the implementation of environmental policy in Vietnam is at present the Environmental Protection Law (2005). This will be superseded by Environment Protection Law 2014 No. 55/2014/QH13 dated 23rd June 2014, which shall be valid from 1st January 2015. In the period between 2010 and September 2014, Vietnam has gained further experience of conducting EIA at provincial level. Refinement of the procedures for post-EIA monitoring may benefit from taking into account this additional experience, particularly if there is an evident need for guidance of a specific nature in regard to post-EIA monitoring. Consequently there is now a need to review the draft guidelines and if necessary strengthen them. Any modifications need to address either or both of the following two aims:

- Harmonising post-EIA implementation procedures with those generally considered best practice in the international community.
- Ensuring that the resulting procedures address any weaknesses in the Vietnamese framework for post-EIA monitoring, which may have become evident since the draft guidelines were originally formulated.

MONRE has requested assistance from the European Trade Policy and Investment Support Project (EU-MUTRAP) in order to do this.

The Terms of Reference for this Task state clearly that the underlying aim of the Vietnamese Government is to close the gap between the number of projects having EIAs completed, on the one hand, and those for which environmental mitigation measures are actually implemented, on the other hand. The whole emphasis of this report, therefore, is how to strengthen the planning and management of post-EIA processes (of which post-EIA monitoring is a part) in order to address the reasons why such mitigation measures tend not to implemented in the first place.

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[1] Guideline on the procedures for conducting test, certifying completed projects for environmental protection according to the decision approving the EIA report

This report is based upon the earlier report of this Task, entitled "Preliminary Analysis of Concordance" (3rd September 2014), and upon the responses to surveys undertaken by the team. The earlier report addressed among other things the question of whether new guidelines for post-EIA monitoring could usefully be developed from the existing guidelines, or whether it would be preferable to develop new guidelines from scratch. The conclusion of that report, based upon the analysis that it conducted, and now confirmed by the findings of the survey work undertaken by the PMU experts, is that:

- the entire post-EIA process is not properly appreciated and understood in Vietnam,
- and that in consequence new guidelines are required that explain and strengthen that understanding, thereby providing the foundation for more specific guidelines in the future.

In other words, in order for the strengthening of post-EIA monitoring to produce any meaningful benefit, there must first be a strengthening of the entire rationale for the planning and implementation of post-EIA activities.

The purpose of this report, therefore, is to provide guidance on the fundamental concepts of post-EIA monitoring: why it is needed; how to ensure that it has a good foundation; how to ensure that the processes to be monitored actually achieve what they set out to achieve in terms of environmental protection; and to monitor those processes in order to know whether the EIA process as a whole is actually achieving the environmental targets for which it is intended.

The guidelines are presented here in the form of a management action plan, which sets out:

(a) Procedural objectives for post-EIA monitoring.
(b) For each procedural objective: The specific actions that the person or institution responsible would need to complete in order to achieve the objective.
(c) For each specific action:

- A description of the action;
- The timing of the action;
- Responsibility for the action;
- The objectively verifiable indicator(s) that MONRE will use as the basis for determining whether or not the action has been completed;

- The criterion (i.e. logical test) or criteria that MONRE will apply to the objectively verifiable indicator(s) in order to assess compliance;
- Responsibility for checking that indicators comply with the applicable criteria;
- A description of the action to be taken in case of:

(a) Compliance

(b) Non-compliance

At each stage, this report provides a justification for the requirement that is described, also one or more guiding principles that need to be considered when addressing the requirement. In this way the report will help to engender a better understanding of EIA as a whole and its role in bringing about genuine improvements to Vietnam's environment.

As already noted the surveys that have been conducted by the Vietnamese experts reveal one issue that needs to be addressed as a priority. It has become apparent that the DONREs are failing to understand the relevance of post-EIA monitoring, because they perceive EIA to be the fulfilment of an administrative requirement rather than an instrument for the implementation of environmental protection policy. This may be due in part to the fact that Vietnamese law requires EIA for many more projects than can be addressed by the capacity available in the country; in consequence it is difficult to generate any enthusiasm for modifying procedures in a way that might place additional workload upon the regulatory authorities. The key to moving forward would be to introduce a screening step into the EIA process, ensuring that the requirement for EIA is limited to as many projects over a certain size as can be addressed by the available institutional capacity. The principles involved are exactly the same as those of the European Union's directives on environmental assessment, noting that the cut-off points would need to be modified in order to match the resulting administrative demand to the capacity actually available in Vietnam. This would need to be the subject of a separate study. The European Commission does provide guidance, but that uses as its starting point the screening criteria specifically established in the law. In Vietnam's case it would be more relevant to receive guidance on how to derive the criteria from scientific considerations and constraints on institutional capacity, prior to incorporating these criteria into law.

The earlier report notes that in order for EIA as a whole to function in Vietnam, there needs to be a change of social attitude towards environmental protection: the acceptance of personal responsibility for protecting the environment needs to be an element of what society expects

from the individual in order to maintain social harmony. These guidelines cannot address this need directly, but it may be possible to adapt the way in which the guidelines are applied in order to encourage this evolution in social attitudes. For example, the checks that this report proposes should be conducted before post-EIA implementation begins are intended to encourage self-monitoring by stakeholders as far as this is possible, in order to minimise any additional administrative burden upon regulatory authorities.

In conclusion, we have taken the view that there is no point in strengthening one particular aspect of a process if the effectiveness of that depends upon other aspects that we do not address and which our inquiries indicate to be in need of strengthening. Accordingly these guidelines address the strengthening of post-EIA monitoring in as holistic a manner as possible, based upon what we know to be the weak points of EIA implementation in Vietnam.

One of the most important things to note in all the guidance that we provide is that the overwhelming majority of activities (and the responsibility to finance these) rests with the project owner. It should not be the responsibility of regulatory authorities to take over certain activities simply because a project owner does not fulfil its responsibilities. Rather, regulatory effort should go into making sure that project owners do accept responsibility and are held to account to the local community in cases where they do not.

II. Procedural objectives for post-EIA monitoring

1. Overview

It is well understood that monitoring, in the sense of being "evaluation", has to have a reference point. In EIA the principles are straightforward and already present in Vietnamese Law, namely:

- Baseline data establish the state of the environment before a project is approved;
- The potential impacts of the project are estimated by reference to the baseline data;
- Mitigation measures are designed in order that the significance of any detrimental impacts is kept within acceptable bounds;
- An environmental management plan (EMP) is designed in order to ensure that the mitigation measures and other environment-related aspects of the project are implemented properly;
- During implementation, further monitoring is conducted in order to show whether the actual environmental situation is as it should be according to the reference points that have been established.

The key reference points, therefore, for the purposes of post-EIA monitoring are:

- The baseline data for the EIA itself, which describe the state of the environment before the project is implemented, and
- The environmental and other performance indicators that are established in the EMP.

These reference points form the foundation for post-EIA monitoring. Therefore one needs to consider what guidance can usefully be provided in regard to these reference points, in order that the strengthening of post-EIA monitoring procedures can be properly effective.

EIA follow-up should consider cumulative effects and sustainability. The application of EIA follow-up at the level of an individual project is, by its very nature, limited in terms of its ability to deal with the cumulative effects of multiple developments and issues relating to sustainability. It may be necessary, therefore, to adopt follow-up procedures that extend in scope beyond the level of the individual project (e.g. procedures that extend to the level of strategy, or are area-oriented.)

All of the objectives listed in the next section address in varying degrees the principles of international best practice in EIA follow-up as promoted by the International Association for Impact Assessment.

2. Guidelines

Reference	Objective	Responsibility
During the EIA process		
1	To have a set of environmental baseline data that is not only sufficient for forecasting environmental impacts but also suitable as a baseline for comparison with post-EIA monitoring data. *<u>Justification</u>: In the absence of adequate baseline data a significant part of the benefit of post-EIA monitoring is lost. Furthermore, the structures of the "before" and "after" data sets need to fairly similar (in experimental design terms) if the intention is to ascribe some measure of significance to any deviation from the baseline situation.* *<u>Guiding principle</u>: A project owner can rarely if ever rely solely on pre-existing officially available data for the purposes of establishing an environmental baseline; and in cases where there are insufficient data to characterise the baseline situation, it is solely the responsibility of the project owner to conduct whatever work is necessary in order to acquire the necessary information.* *Note that in order to be able to take proper account of diurnal and seasonal variations in the state of the environment, baseline data must be properly representative. In practice this will mean that at least one complete years' worth of data will need to be collected and a project owner must not expect to be able to circumvent that requirement merely in order to save time or expense. Ideally a project owner should consult MONRE or DONRE with regard to designing a programme for collection of baseline data.*	Project owner, in consultation with MONRE or DONRE.

Reference	Objective	Responsibility
	Both project owners and regulatory authorities need to be aware of another area of potential difficulty. Pre-existing data (assuming that there are any, which in many cases will not be the case) will almost certainly have been acquired solely for regulatory purposes, which in the majority of cases is statistically inadequate for the comparison of scenarios and the estimation of environmental significance. Consequently at the time of reviewing an EIA, MONRE or a DONRE should take care to establish that the baseline data being used by the project owner are in fact fit for the purpose of post-EIA monitoring comparisons. One must avoid the mistake of assuming that the prior existence of data means that there is no need to plan and collect additional baseline data for the specific purpose of post-EIA monitoring. The project owner is responsibility for organising and paying for all such data collection; however MONRE or the DONREs should have the capacity and capability to provide guidance to project owners concerning the design of monitoring programmes. *Finally, regulatory authorities should have the right to reject an EIA if they have reason to believe that the baseline data on which the EIA is based are in any way not fit for purpose as a reference point for post-EIA monitoring.*	
Before commencing post-EIA implementation		
2	To have an environmental management plan (EMP) that is genuinely appropriate to the project in question. <u>*Justification*</u>*: This addresses the principle of international best practice that Follow-up is essential to*	MONRE or DONRE as appropriate to the

Reference	Objective	Responsibility
	determine EIA outcomes. (Note this not saying that EIA will not have an outcome in the absence of follow up, but rather that Vietnam can have no confidence in the outcome unless there is proper EIA follow-up.) *An EMP is the only basis for effective post-EIA monitoring. Therefore ensuring that an EMP is appropriate is the first step in ensuring that post-EIA actions make an effective contribution to environmental protection. Although projects can be classified generically in order to help in identifying actions needed to mitigate environmental impacts, the significance of issues varies from project to project. Furthermore, a post-EIA monitoring mechanism that works in one case may not necessarily be appropriate in a different context.* *<u>Guiding principle</u>: Vietnamese Law requires that EMPs are produced. However do not assume that an EMP is appropriate until it has been independently checked and verified by somebody with experience of assessing and mitigating environmental impacts.*	project under consideration
3	To have an EMP that is sufficiently detailed and properly scoped to form the basis of an auditable work programme for post-EIA actions. *<u>Justification</u>: The way in which regulatory requirements are expressed is rarely adequate for the purposes of operational management, because regulatory and administrative procedures tend to be insufficiently specific and measurable. Since the whole point of post-EIA monitoring is to confer confidence, an EMP on which it is based must be expressed in terms that enable compliance with it to be audited.*	MONRE or DONRE as appropriate to the project under consideration

Reference	Objective	Responsibility
	Guiding principle: Do not assume that administrative approval of an EMP is an indication that it is fit for purpose. If possible, try to ensure that it is reviewed by someone with experience of planning and managing projects using teams of people.	
4	To have an EMP that is structured according to international best practice. *Justification: It is not absolutely necessary for an EMP in Vietnam to follow any model from elsewhere in the world. Nevertheless international best practice provides useful guidance for two reasons. Firstly, it establishes principles that have been found to work when applied properly. Secondly, it facilitates working with foreign investors, international financing institutions and so on, which is relevant among other things to managing the environmental impacts of direct foreign investments.* *Guiding principle: Refer to the World Bank's "EMP Checklist for Construction and Rehabilitation Activities" if compatibility with international practice is a significant issue for the project under consideration.*	MONRE or DONRE as appropriate to the project under consideration
5	To have an agreed stakeholder engagement plan. *Justification: This addresses the principles in international best practice that the community should be involved in EIA follow-up and that EIA follow-up should be transparent and open. Regulatory mechanisms alone will not ensure proper implementation of post-EIA actions. It is necessary to cultivate in all*	To be formulated by the project owner and approved by MONRE or DONRE as appropriate to the

Reference	Objective	Responsibility
	stakeholders (including the project owner) the necessary sense of responsibility towards the other stakeholders. In this way, social expectation rather than regulatory compulsion becomes the main driver for the effective implementation of post-EIA actions, thereby reducing the administrative burden of post-EIA monitoring for regulatory authorities. In effect, the stakeholders need to hold each other to account for their actions. *Guiding principle: Recognise that people are motivated mainly by what is important to them and to the people around them. Try to make use of this when setting up and implementing post-EIA systems. Emphasise to people that at the most fundamental level there is no separation between the individual and the environment; consequently respect for the environment is the logical expression of self-respect.*	project under consideration
6	To have an implementation road-map for post-EIA activities. *Justification: This is an important contributor to the internationally recognised principle of transparency and openness in EIA follow-up. However well-conceived and written an EMP is, however much you explain to people their responsibilities and what they are required to do, there is a much better chance that they will do what they need to do when they need to do it if the whole post-EIA action plan is expressed visually. (The saying that "a picture paints a thousand words" applies to project management as much as in any other sphere of life.) Such a visual presentation does not have to be required by law in order for it to be used as a tool in facilitating post-EIA implementation and monitoring.*	MONRE or DONRE as appropriate to the project under consideration

Reference	Objective	Responsibility
	<u>Guiding principle</u>: GANTT charts are easy to understand but are not necessarily the best way of representing a post-EIA implementation programme. One of the more important considerations is the need to clarify dependencies. In that way, stakeholders can see easily who needs to be interacting with whom, when and how. A PERT ("Programme Evaluation Review Technique") chart is better suited to this particular requirement.	
7	To ensure commitment to EIA follow-up. *<u>Justification</u>: It is an internationally recognised principle that there should be commitment to EIA follow-up and that the proponent of change should accept accountability for EIA follow-up. The lack of effective EIA follow-up in Vietnam is the main factor motivating the need for strengthened guidelines. Therefore this is a very important objective in relation to post-EIA monitoring.* *<u>Guiding principle</u>: Once the stakeholder engagement plan has been prepared, the project owner should be required to make a legally binding commitment to implement EIA follow-up and to accept accountability for EIA follow-up. International best practice also embraces the principle that Regulators should ensure that EIA is followed up. One of the mechanisms for this should be a provision in the aforementioned commitment that in the event of any failure by project owners to respect their EIA follow-up obligations, MONRE may in principle make a public announcement containing the following information:* *• the name of the project owner;*	(1) Project owner (2) MONRE or DONRE (as appropriate)

Reference	Objective	Responsibility
	• *the nature of the action that the project owner has failed to take;* • *the name of the individual person who originally accepted responsibility on behalf of the project owner for ensuring that the action would be taken;* • *the name of the individual person responsible for rectifying the non-conformity;* • *the date by which corrective action must be taken;* • *the actual environmental and social impact of corrective action not being taken, expressed in non-technical terms.* In addition the regulatory authority should consider putting in place a simple memorandum of agreement between the parties concerned, which would then provide objectively verifiable evidence of commitment for audit purposes. The memorandum should identify roles and assign specific management responsibilities for each role.	
At the start of post-EIA implementation		
8	To ensure that the start date for post-EIA implementation is known and well-publicised. *Justification: This contributes to the internationally recognised principle that transparency and openness in*	Project owner (subject to random audit by MONRE or

Reference	Objective	Responsibility
	EIA follow-up is important. It is easy to overlook the fact that the scheduling of a work programme makes sense only if everyone involved knows precisely when it starts. By establishing formally and publicising the baseline date for post-EIA implementation, one defines absolutely the deadlines for all subsequent actions. *Guiding principle: This may be the date on which the project owner is given approval to proceed with the project, or a later date may be agreed if the start of the project is deferred. Don't assume that all stakeholders would automatically be aware of the date. Ensure that dissemination of this information is part of the stakeholder engagement plan (see above).*	DONRE)
During post-EIA implementation		
9	To ensure that environmental monitoring is conducted in accordance with the EMP. *Justification: Environmental monitoring in this context means establishing the values of environmental parameters, whether by direct measurement or by sample collection and laboratory analysis, using recognised methods and in conformity with an agreed programme. Without properly planned and structured monitoring programmes, there is no objectively verifiable basis for claiming whether the requirements of an EMP have or have not been respected.* *Guiding principle: Unless the project owner has an ISO-accredited environmental management and laboratory analytical capability (which the vast majority of project owners will not have), then this requirement can be verified only by auditing the entire data acquisition, laboratory analysis and*	Project owner

Reference	Objective	Responsibility
	information collation process.	
10	To ensure that environmental compliance assessment is conducted and reported in accordance with the EMP. *Justification: The phasing of project implementation and of post-EIA monitoring, as envisaged in the EMP, needs to be respected. This enables any necessary adjustments to be made during project implementation in a properly informed way.* *Guiding principle: The timing of data collection and the reporting of the results obtained should never be allowed to drift too far away from the pre-envisaged programme. As a general rule, if time interval between two successive tranches of monitoring is X (in whatever time units apply), then the maximum tolerance for varying the timing should be regarded as ±12% of X. Be aware, however, that there may from time to time be situations in which timing is more critical or in which it is less important. The aim here is to provide guidance rather than to impose a prescriptive requirement.*	Project owner
11	To ensure an adequate understanding of environmental statistical methods for the purposes of comparing environmental data sets. *Justification: One of the weakest aspects of environmental management in almost any country is the level of awareness of the statistical behaviour of environmental data and of the various statistical methods that are the best suited to the characteristics of environmental data. This is particularly important because*	Project owner

Reference	Objective	Responsibility
	environmental data tend to be inherently highly variable. This means that a lot of data are needed in order to be able to draw conclusions with high levels of confidence. In practice it is almost always necessary to make a compromise between the information yield of data and the cost of data acquisition. In the context of post-EIA monitoring it is important that the costs of data acquisition are not so excessive as to prevent it being possible to collect the data; at the same time one needs to be aware of the limitations on information yield in cases where affordable data collection provides less information than one would wish for in an ideal situation. In this way it is possible to manage the risk of drawing incorrect conclusions from limited data sets. *Guiding principle: Although there are available computer-based statistical tools aimed at environmental data, the simple fact is that there is no substitute for real-world experience when it comes to environmental statistics. It is impossible to generalise. The most important guiding principle is to err on the side of having too many data rather than too few, because the incremental cost of additional data collection is likely to be small compared to the incremental cost of having to rectify an incorrect decision at a later stage of implementation. Project owners should be encouraged to engage recognised experts on short-term contracts in order to assist with this.*	
12	To ensure that environmental performance evaluation and any necessary revisions to the EMP are conducted. *Justification: This is a straightforward process audit requirement, intended to ensure that a project owner*	MONRE

Reference	Objective	Responsibility
	fulfils the obligation to mitigate environmental impacts and to take any action necessary if the environmental performance of the project fails to meet expectations. *Guiding principle: Any process audit action of this nature should be informed by the procedures normally used for auditing compliance with quality standards such as ISO 9000 and ISO 14000.*	
13	To conduct periodic audits of post-EIA implementation. *Justification: The majority of post-EIA implementation actions are the responsibility of the project owner. Nevertheless as with any other work programme it is appropriate to conduct compliance audits from time to time. It is not sufficient that the project owner claims to be doing what is required. There must be objectively verifiable evidence of this. The audit should be conducted solely on the basis of such objectively verifiable evidence.* *Guiding principle: Quality auditing is a particular skill. It is worth engaging an auditing specialist and ensuring that all possible conflicts of interested are avoided.*	MONRE

III. Specific actions relevant to post-EIA monitoring

1. Overview

In the following guidelines, each of the procedural objectives proposed in Chapter 2 broken down into a series of actions. The actions that we list do not represent the totality of what is needed in order to achieve the objective, but they are the areas that we know from experience tend to be weak or to give rise to problems during the period when EIA is developing as a policy instrument in a country such as Vietnam. They include those issues that are specific to Vietnam, which our investigations indicate need to be addressed.

Note that post-EIA environmental monitoring as such will be addressed in greater detail in Chapter 4.

The guidelines cover:

- What? = what is the action or issue that needs to be addressed?
- When? = when does this action need to happen or when is it relevant to consider this issue?
- Who? = who need to initiate the action or be responsible for considering the issue?
- Monitoring what? = what are you going to use as the indicator of whether the action has been properly implemented or the issue adequately addressed?
- Meaning? = what are you going to do as a consequence of this action? What are the possible outcomes? What other issues might you need to consider? Why is all of this relevant?

We accept that for certain readers of this report, the guidance that we offer may seem obvious. Our justification for offering it is that this will not necessarily be the case for all people to whose work the guidelines may be relevant.

From the point of view of MONRE, it is important to note that:

(a) The vast majority of actions are the responsibility of the project owner. If the project owner fails to respect its obligations, then MONRE's responsibility should be limited to taking action to ensure that the project owner takes corrective action. Clearly it is not MONRE's responsibility to take the corrective action itself, nor would it be

appropriate that it should be. This is a broad application of the “polluter pays” principle.

(b) There are certain points in the process at which MONRE should intervene in order to facilitate and monitor the process of post-EIA implementation. These are highlighted in the guidelines that follow.

2. Guidelines

	What?	When?	Who?	Monitoring what?	Tested how?
1	To have a set of environmental baseline data that is not only sufficient for forecasting environmental impacts but also suitable as a baseline for comparison with post-EIA monitoring data.				
1.1	Understand the information needs: - Identify the main decision parameters (which environmental parameters are most relevant to the type of impacts that can reasonably be expected?) - Make a note of any of these parameters that have seasonal or diurnal patterns of variation that need to be taken into account when comparing one set of data with another. (The statistical technique known as "time series analysis of variance" may be helpful here.) - Determine how often it would be necessary to monitor each parameter and over what period of time, in order to provide an acceptable degree of confidence that the right decisions are being made. ACTION BY MONRE: - If necessary provide advice to project owners regarding information	Ideally before scoping the EIA; possibly to be refined after scoping is complete.	Project owner in consultation with MONRE or DONRE. In principle it is the project owner's responsibility to collect or otherwise obtain the baseline data for the EIA	It is recommended that the process is documented in order to provide a reference for future EIAs. <u>Meaning</u>: The techniques of experimental design should ideally be employed. The INSTITUTE FOR ENVIRONMENTAL SCIENCE AND DEVELOPMENT can advise. Do not assume that monitoring	

	What?	When?	Who?	Monitoring what?	Tested how?
	needs. This is a discretionary action. Ultimate responsibility rests with the project owner.		and for post-EIA monitoring. MONRE / DONRE can support by providing information, but should also help the project owner to understand any limitations in the data.	programmes specified in legislation (including EU legislation) are adequate for scientific purposes: they are usually aimed at binomial compliance testing, which is a less data-intensive requirement than the scientific requirement applicable to EIA. Most types of environmental parameter need to be monitored at more or less regular intervals over a reasonable period of time in order to extract any meaningful information from the data. The more highly variable the parameter, the more observations will be	

	What?	When?	Who?	Monitoring what?	Tested how?
				needed to draw any conclusions from data. Data sets should as far as possible be homoscedastic (i.e. observations evenly spaced in time) and based upon a consistently applied procedure for sampling and laboratory analysis (for example, chemical oxygen demand should be based upon dichromate oxidation or permanganate oxidation, but not a mixture of the two).	
1.2	Assess available information: - Any data that may already be available should be examined for conformity with the information needs in 1.1 above. - If data need to be supplemented with additional data collection, it is	Ideally before scoping the EIA; possibly to be refined	Project owner in consultation with MONRE	It is recommended that the process is documented in order to provide a reference for future EIAs.	

	What?	When?	Who?	Monitoring what?	Tested how?
	first necessary to establish the procedures used that generated the existing data. If possible, the same procedures should be used for additional data collection. ACTION BY MONRE: - If necessary provide advice to project owners regarding available information. This is a discretionary action. Ultimate responsibility rests with the project owner.	after scoping is complete.	or DONRE. In principle it is the project owner's responsibility to collect or otherwise obtain the baseline data for the EIA and for post-EIA monitoring. MONRE / DONRE can support by providing information,	<u>Meaning</u>: The techniques of experimental design should ideally be employed. The INSTITUTE FOR ENVIRONMENTAL SCIENCE AND DEVELOPMENT can advise. If there is time and budget available for data collection, it may be better to plan a properly-structured survey than to use existing data in cases where these are of questionable reliability.	

	What?	When?	Who?	Monitoring what?	Tested how?
			but should also help the project owner to understand any limitations in the data.		
1.3	Document all of the key parameters of the baseline data set: Essentially, this involves documenting everything necessary to enable the baseline data collection programme to be replicated at any time in the future. ACTION BY MONRE: - Check that this has been done properly at the time of reviewing the EIA report. This is a discretionary action, but is nevertheless highly desirable.	After scoping is complete.	Project owner.	It is not an absolute requirement that MONRE / DONRE checks that this is done. However it would certainly be helpful to have an experienced person verify that this has been done to the necessary level of detail. <u>Meaning</u>: Since the baseline	

	What?	When?	Who?	Monitoring what?	Tested how?
				data set is to be used as the reference point for post-EIA monitoring, it is highly desirable that post-EIA monitoring campaigns should be able to replicate in whole or in part the characteristics of the baseline data set. The documentation to which we refer here should in principle be incorporated into the EMP, and form part of the specification of requirements for post-EIA monitoring.	
2	To have an environmental management plan (EMP) that is genuinely appropriate to the project in question.				
2.1	Review the actions in the EMP.	Before submission of	Peer review is the project	- Check of technical coherence	- Peer review of the EIA and the

	What?	When?	Who?	Monitoring what?	Tested how?
	The World Bank's "EMP Checklist for Construction and Rehabilitation Activities" provides a useful reference. A general review should be undertaken, followed by the specific checks listed below (source: World Bank). Check that the EMP contains: - Procedures to ensure that local authorities and affected communities have been notified of upcoming activities. - Procedures to ensure that the public is notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works). - A check that all legally required permits have been acquired for construction and/or rehabilitation. - An undertaking by the project owner to ensure that all work will be carried out in a safe and disciplined manner, designed to minimize impacts on neighbouring residents and the environment. - A procedure to ensure that site work will comply with international good practice (always hardhats; masks, safety glasses, harnesses and safety boots as needed).	the EIA to MONRE / DONRE and during the process of regulatory review and approval.	owner's responsibility. Regulatory review and approval is the responsibility of MONRE / DONRE.	- Check of conformity with requirements	- EMP - Regulatory checks during EIA approval
				<u>Meaning</u>: If the EMP is to be genuinely effective in mitigating environmental impacts in the manner intended, then it needs to be properly coherent with the scope, predicted impacts and required mitigation measured in the EIA itself. These checks are intended to ensure that is the case.	

	What?	When?	Who?	Monitoring what?	Tested how?
	- A procedure to ensure appropriate signposting of the sites, informing workers of key rules and regulations to follow.				
2.2	For projects that involve:	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	Conformity with requirements	Peer review
	- Building rehabilitation … see 2.3 below				
	- Minor new construction … see 2.3 below				
	- Individual wastewater treatment systems … see 2.4 below				
	- Historic building(s) and districts … see 2.5 below				
	- Acquisition of land … see 2.6 below				
	- Hazardous or toxic materials … see 2.7 below				
	- Impacts on forests and/or protected areas … see 2.8 below				
	- Handling / management of medical waste … see 2.9 below				
	- Traffic and Pedestrian Safety … see 2.10 below				

	What?	When?	Who?	Monitoring what?	Tested how?
2.3	General Rehabilitation and/or Construction Activities				
	Air quality control - During interior demolition debris-chutes shall be used above the first floor. - Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust. - During pneumatic drilling/wall destruction dust shall be suppressed by on-going water spraying and/or installing dust screen enclosures at the site. - The surrounding environment (walkways, roads) shall be kept free of debris to minimize dust. - There will be no open burning of construction waste or other waste material at the site. - There will be no excessive idling of construction vehicles at sites (to minimise vehicle emissions and noise intrusion).	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	Conformity with requirements	Peer review
	Noise abatement measures - Construction activities that generate noise should be limited to the	Prior to final approval of an	The project owner should	Conformity with	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
	times agreed when granting a construction permit. - During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible.	EMP.	check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	requirements	
	Water quality control - The site will establish appropriate erosion and sediment control measures such as, for example, hay bales and/or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval.	Conformity with requirements	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
			MONRE / DONRE should also check before approving the EMP.		
	Waste management - Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. - Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. - Construction waste will be collected and disposed properly in accordance with applicable regulations. - Records of waste disposal will be maintained, as evidence that procedures have been followed as intended. - Whenever feasible the project owner should ensure the recycling and	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before	Conformity with requirements	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
	re-use of appropriate and viable materials (except asbestos).		approving the EMP.		
2.4	Individual wastewater treatment systems				
	Water quality control - The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities. - Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment. - Monitoring of new wastewater systems (before/after) will be carried out. - Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	Conformity with requirements	Peer review
2.5	Historic building(s)				

	What?	When?	Who?	Monitoring what?	Tested how?
	Cultural heritage - If the building is a designated historic structure, very close to such a structure, or located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation. - It shall be ensured that provisions are put in place so that artefacts or other unexpected finds that are encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	Conformity with requirements	Peer review
2.6	Acquisition of land				
	Land Acquisition Plan / Framework - If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected	Prior to final approval of an EMP.	The project owner should check this	Conformity with requirements	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
	but may occur, then project sponsors should be immediately consulted. - The approved Land Acquisition Plan or Framework (if required by the project) will be implemented.		before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.		
2.7	Hazardous or toxic materials				
	Asbestos management - If asbestos is located on the project site, it shall be marked clearly as hazardous material. - When possible the asbestos will be appropriately contained and sealed to minimize exposure. - The asbestos prior to removal (if removal is necessary) will be	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for	Conformity with requirements	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
	treated with a wetting agent to minimize asbestos dust. - Asbestos will be handled and disposed of by skilled and experienced professionals. - If asbestos material is to be stored temporarily, the wastes should be securely enclosed inside closed containers and marked appropriately. Security measures will be taken to prevent unauthorized removal from the site. - The removed asbestos will not be reused.		approval. MONRE / DONRE should also check before approving the EMP.		
	Toxic and/or hazardous waste management - Temporary storage on site of all hazardous or toxic substances will be in safe containers that are labelled with details of composition, properties and handling requirements. - The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching. - The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. - Paints with toxic ingredients or solvents or lead-based paints will not be used.	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also	Conformity with requirements	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
			check before approving the EMP.		
2.8.	Affected forests, wetlands and/or protected areas				
	Protection - All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. - A survey and an inventory shall be made of large trees in the vicinity of the construction activity. Large trees shall be marked and cordoned off with fencing, their root systems protected and any damage to the trees avoided. - Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences. - There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	Conformity with requirements	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
2.9	Handling / management of medical waste				
	Infrastructure for medical waste management - In compliance with national regulations the project owner (including its employees, agents and contractors) will ensure that newly constructed and/or rehabilitated health care facilities include sufficient infrastructure for medical waste handling and disposal. This shall include but not be limited to: ▪ Special facilities for segregated healthcare waste (including soiled instruments "sharps", and human tissue or fluids) from other waste disposal; ▪ Appropriate storage facilities for medical waste are in place; and ▪ If the activity includes facility-based treatment, appropriate disposal options are in place and operational.	Prior to final approval of an EMP.	The project owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	Conformity with requirements	Peer review
2.10	Traffic and Pedestrian Safety				
	Direct or indirect hazards to public traffic and pedestrians by	Prior to final	The project	Conformity	Peer review

	What?	When?	Who?	Monitoring what?	Tested how?
	construction activities - In compliance with national regulations the project owner (including its employees, agents and contractors) will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to the following: ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards. ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement. ▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. ▪ Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.	approval of an EMP.	owner should check this before submitting the EMP for approval. MONRE / DONRE should also check before approving the EMP.	with requirements	

	What?	When?	Who?	Monitoring what?	Tested how?
3	To have an EMP that is sufficiently detailed and properly scoped to form the basis of an auditable work programme for post-EIA actions.				
3.1	The actions described for Objective 2 above will go a long way towards achieving this objective also. In order for the post-EIA work programme to be "auditable", the following conditions need to be met: - Each key element of the work programme must be capable of generating objectively verifiable evidence that it either has or has not achieved the intended result by the intended deadline. - The usual form of questioning that an auditor will follow when evaluating compliance with a work programme would be (for example): ▪ Auditor: "Did you complete this survey by the date indicated here?" ▪ Project manager: "Yes." ▪ Auditor: "Please show me the records." - At this point the project manager would be expected to produce documentation that proves beyond reasonable doubt that what he says is in fact true. - A post-EIA work programme audit can take note of subjective			Meaning: In order to appreciate the way to approach this issue, it is best not to think of it as in any way connected with the environment. Certainly the *context* is post-EIA monitoring, but the *process* is actually a Quality Management System. One approaches the planning and implementation of post-EIA monitoring in the same way as any other work programme that is governed by a Quality Management System.	

	What?	When?	Who?	Monitoring what?	Tested how?
	opinion, but that does not constitute evidence of conformity with requirements. - See 3.2 below for guidance on how to approach this requirement.			The benefits of this are twofold. Firstly, it provides the project owner and the regulatory authorities with the assurance that the work is planned and managed in a well-structured way that is internationally recognised. Secondly, it provides members of the public with assurance that the project owner is respecting obligations and in that way contributing to social harmony.	
3.2	- Split the post-EIA work programme into as many discrete phases, with clearly defined outputs, as reasonably sensible. This will for the most part already be a feature of the EMP, but it may be advisable to sub-divide certain aspects of it in order to manage the work better.	At the time of formulating the EMP.	Theoretically the project owner's responsibility.	A simple peer review of the EMP by an experienced project planner would be sufficient for this.	

	What?	When?	Who?	Monitoring what?	Tested how?
	- For each part of the work programme, identify clearly what is to be produced, when, by whom and how its achievement is to be demonstrated. - Be aware that so-called project management software (e.g. Microsoft Project) should be used only by experienced project managers. In less experienced people it can instil a misplaced sense of confidence and tends to divert attention from the real issues. ACTION BY MONRE: - This is the project owner's responsibility. However MONRE may be able to offer advice.				
4	To have an EMP that is structured according to international best practice.				
4.1	The actions described above for objectives 2 and 3 will ensure also that objective 4 is met. No further specific action is necessary. It is recommended, however, that these guidelines should be reviewed from time to time by the INSTITUTE FOR ENVIRONMENTAL SCIENCE AND DEVELOPMENT in order to ensure that they are kept current with respect to international developments.	No action needed.			

	What?	When?	Who?	Monitoring what?	Tested how?
5	To have an agreed stakeholder engagement plan.				
5.1	Stakeholder engagement should commence at the scoping stage of the EIA itself. It is not good practice to consult stakeholders only later in the process. To some extent the process of stakeholder consultation can be incorporated in Law; this applies mainly to the identification of *statutory* consultees and the stages in the process at which they should be consulted. Nevertheless, the fact that this may be set down in law should not exempt project owners from the responsibility to ensure that stakeholders' interests are taken comprehensively into account. Therefore project owners need to think about the following: - Who are our stakeholders? - Can we usefully divide our stakeholders into groups? (Some organisations refer to this as "segmenting" stakeholders.) - What benefits can we expect from meaningful stakeholder engagement? - What information sources do we already have about our stakeholders and their views?	At the start of the EIA process, with a review at the time of preparing the EMP.	Project owner.	Stakeholder involvement plan Plan includes post-EIA stakeholder involvement	Plan exists (yes or no) Yes or no

	What?	When?	Who?	Monitoring what?	Tested how?
	- What, therefore, do we think are the principal stakeholder concerns? What matters to them? What do they have a right to feel concerned about? What *should* they feel concerned about even they don't realise it yet? - What are the project owner's and the regulatory authorities' needs in respect of the stakeholders? - Project owners should not forget that they are a part of their local society and need to play their part in maintaining social harmony. Although it may not be immediately obvious, there is quite a high opportunity cost attaching to undermining social harmony at local level, of which project owners need to take account. - What are the priorities for better understanding stakeholder needs? In particular, are there already or might there be significant and potentially damaging gaps between the interests of stakeholders, on the one hand, and the project owner, on the other hand? - Where is the potential for reducing risks and increasing opportunities by bringing the interests of stakeholders and the project owner into close alignment? - What is the best methodology for meaningful engagement with key				

	What?	When?	Who?	Monitoring what?	Tested how?
	stakeholders? - What does the project owner need to do to maximise the value of stakeholder involvement with regard to the ultimate aim of protecting the environment? - How does the project owner learn and continuously improve meaningful stakeholder engagement? ACTION BY MONRE: - Check that the Stakeholder Engagement Plan exists and is adequate. Ultimate responsibility rests with the project owner.				
5.2	Draw up a stakeholder engagement plan. Annex I provides a guideline for how to structure this.	At EIA inception.	Project owner	Existence of plan	Plan exists (yes or no)
5.3	Implement the stakeholder engagement plan.	From EIA inception through to the end of post-EIA activities.	Project owner	Minutes of stakeholder meetings, communications records, information	Audit for the existence of these to demonstrate the activities are being

	What?	When?	Who?	Monitoring what?	Tested how?
				campaigns.	conducted.
6	To have an implementation road-map for post-EIA activities.				
6.1	The EMP will consist of a wide range of actions. These can be divided into: - Actions to be undertaken by the project owner or one of the project owner's employees, agents or contractors. ▪ Overall management of the EMP ▪ All works and environmental protection activities connected with the project location ▪ Coordination of stakeholder involvement ▪ Monitoring and reporting to regulatory authorities - Actions to be undertaken by regulatory authorities. ▪ Notifying the project owner when inspections are to be undertaken or reports to be submitted ▪ Approvals, permits and licences ▪ Facilitating public consultation (where appropriate) ▪ Post-EIA audits - Actions to be undertaken by other stakeholders.	At the start of post-EIA activities.	Project owner.	Non-technical brochure or similar publication, representing in graphical form the post-EIA process, so that all stakeholders can visualise it clearly.	Brochure produced and published, distributed to all stakeholders.

	What?	When?	Who?	Monitoring what?	Tested how?
	▪ Representations ▪ Consultations ▪ Contracts or other arrangements for the provision of utility services (water supply, waste water disposal, waste management, electricity and gas supply, telecommunications, haulage and transport, etc.) The overall process of post-EIA implementation is illustrated in Figure 1, which follows this table. In that context, post EIA monitoring is clearly seen as the mechanism for refining the EMP so that the environmental performance is well managed. ACTION BY MONRE: - Check that the brochure has been produced and distributed. Ultimate responsibility rests with the project owner.				
6.2	The post-EIA monitoring sub-process can usefully be expressed in the form of a PERT chart, showing: - On-going day-to-day monitoring for site management purposes. This will include the procedures for e.g. site perimeter monitoring of dust	At the start of post-EIA activities.	Project owner.	Work programme for post-EIA monitoring, in	Chart produced and distributed to all actors to

	What?	When?	Who?	Monitoring what?	Tested how?
	levels and particulates, groundwater sampling, surface drainage monitoring etc., and for documenting these on a day-to-day basis; also the actions that a site manager would be expected to undertake to rectify any unsatisfactory situation. - Regular monitoring surveys (including mid-term monitoring and similar), intended to get a broader picture of environmental changes and trends. The specification of these is dealt with later in this report. - Reporting of regular monitoring surveys. - Procedures for reviewing and if necessary revising the EMP as a function of survey results. It is recommended that a PERT chart should be used for this purpose because it summarises in a visual manner the relationships and linkages between the various components of the tasks listed above. Each component action will have associated with it a defined start date and end date, also inputs from other activities and outputs to other activities. ACTION BY MONRE:			the form of a PERT chart.	whom it applies, including regulatory authorities.

	What?	When?	Who?	Monitoring what?	Tested how?
	- All of the monitoring described above is the responsibility of the project owner. This does not preclude the possibility of MONRE performing its own monitoring in order to validate that results being reported by the project owner. This is a discretionary action, but until EIA becomes better established in Vietnam may be highly advisable.				
7	To ensure commitment to EIA follow-up.				
7.1	The guidance given here is an attempt to overcome the barrier to effective post-EIA implementation that results from a project owner either not having or being unwilling to commit the funds necessary to support all post-EIA actions for which a project owner would normally be responsible. Two mechanisms are suggested for possible further investigation. The first mechanism is intended to establish the financial capability of the project owner. The second mechanism is intended to secure financial commitment via a bilateral contract between the project owner and the People's Committee representing the local community.				

	What?	When?	Who?	Monitoring what?	Tested how?
7.2	- Provide evidence of financial capability to implement all of the required environmental mitigation measures and other necessary follow-up activities, at the time of submitting an environmental impact report for approval. - Approval of the EIA should be contingent upon the project owner demonstrating the financial capability to meet the cash flow demands of post-EIA implementation during both the construction and operational phases of a project.	Prior to submitting an EIA report for approval.	Project owner to provide evidence. <u>MONRE to verify</u>.	Statements of assets and liabilities, other supporting financial information, demonstrating capability to underwrite the costs of post-EIA actions.	Information submitted and verified.
7.3	Make a bilateral agreement between the project owner, of the one part, and the local People's Committee, of the other part (the Parties). In broad terms the agreement should establish that: - The project owner undertakes to contribute to the maintenance of social harmony in the community or communities in which the project is located.	This suggestion requires significant additional research before it can be adopted. Nevertheless it is in line with internationally recognised principles of good governance and social accountability.			

	What?	When?	Who?	Monitoring what?	Tested how?
	- Without prejudice to any other rights or responsibilities under Vietnamese Law for the time being in force, the project owner is required to provide collateral to the value of 10% of the total implementation cost of post-EIA mitigation measures and monitoring during both construction and operational phases, such costs to be expressed as a net present value for the purposes of calculation. - The project owner agrees that the collateral will be forfeit in the event that the project owner fails to implement in accordance with design the required environmental mitigation measures and post-EIA environmental monitoring.				
8	To ensure that the start date for post-EIA implementation is known and well-publicised.				
8.1	Call an initial meeting of key stakeholders at the start of the post-EIA process. ACTION BY MONRE: - Monitor this action.	After approval of the EMP but before start of any project activities.	Project owner.	Minutes of meeting	Minutes exist (yes or no)

	What?	When?	Who?	Monitoring what?	Tested how?
8.2	Agree a start date for all post-EIA activities. This may be earlier than the start of pre-construction activities but should not be later.	After approval of the EMP but before start of any project activities.	Project owner.	Minutes of meeting	Minutes exist (yes or no) Start date agreed (yes or no)
8.3	Issue to all stakeholders a notice informing them of the agreed start date.	After approval of the EMP but before start of any project activities.	Project owner.	Letter or other form of information	Notice issued (yes or no)
9	To ensure that environmental monitoring is conducted in accordance with the EMP.				
9.1	Develop a detailed environmental monitoring plan and implement it, in accordance with the guidelines given in Chapter 4 below.	At the time of preparing the EMP.	Project owner.	Monitoring plan	Plan approved and being implemented in accordance

	What?	When?	Who?	Monitoring what?	Tested how?
					with requirements (yes or no)
10	To ensure that environmental compliance assessment is conducted and reported in accordance with the EMP.				
10.1	Compliance assessment requirements would normally be addressed in the post-EIA environmental monitoring specification. This is covered in Chapter 4 below.				
11	To ensure an adequate understanding of environmental statistical methods for the purposes of comparing environmental data sets.				
11.1	The key statistical methods of which people need to be aware for the purposes of assessing compliance and comparing sets of environmental data are as follows: - Time-series analysis of variance (ANOVA) using the sequential F-test. This is an important method for detecting any significant patterns in data such as ▪ Long-term trends (increasing or decreasing) ▪ Patterns of seasonal variation (e.g. a tendency for ammonia levels in rivers to be higher in the winter than in the summer)				

	What?	When?	Who?	Monitoring what?	Tested how?
	▪ Patterns of diurnal variation (i.e. variation within the day) where there exist sufficient data to enable this (e.g. patterns of sewage load as a function of social habits during the day) By extracting repeating periodic components from data, this method also enables forecasts to be made more accurately, because it reduces the unexplained variance in the residual data. - One-sided binomial probability theory. This is an essential tool when attempting to answer questions such as "Do these data comply with the target?" in cases where the target is expressed as a mean or a percentile. This is one of the methods that have actually been incorporated into European Union Law, in the form of Table 3, Annex I of Directive 91/271/EEC. - Non-parametric tests such as the two-sided Kolmogorov-Smirnov test. The best reference text on this subject can be found in *Conover WJ, Practical Nonparametric Statistics, John Wiley & Sons; 3rd Edition (13 Jan 1999)*. This is not a method that will be used very frequently, but it is one of the most robust tests available for comparing two data sets in order to determine the probability that they come from the same population, without having to make any				

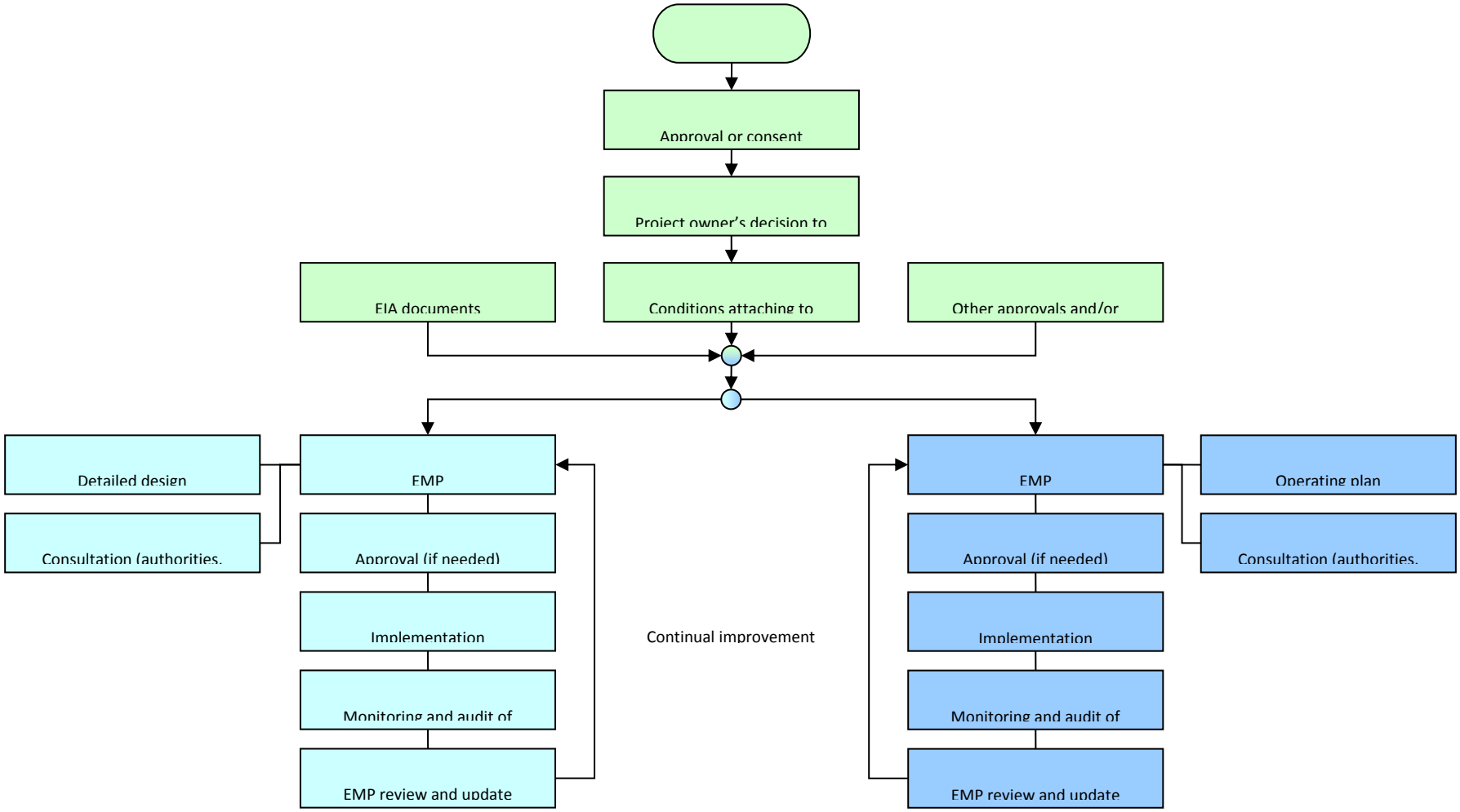
	What?	When?	Who?	Monitoring what?	Tested how?
	assumptions about the population itself.				
12	To ensure that environmental performance evaluation and any necessary revisions to the EMP are conducted.				
12.1	Conduct periodic collection of relevant environmental data for the purposes of environmental performance evaluation.	At specified times during the construction and operational phases of the project.	Project owner	Records of monitoring surveys	Records exist (yes or no)
12.2	Collate results and compare with the baseline data and with previous survey results in order to identify any significant trends or disparities.	At specified times during the construction and operational phases of the	Project owner	Project documentation	Documentation exist (yes or no)

	What?	When?	Who?	Monitoring what?	Tested how?
		project.			
12.3	If there exist any trends, non-compliances or other features of the data, which suggest that the environmental performance of the project may not be as predicted by the EIA and in combination with the mitigation measures being implemented: - Determine whether there are any other causal influences that might account for the observations, apart from the project itself. - Determine if and to what extent the project can reasonably be assumed to be the main factor in the observations. - Identify any necessary changes to mitigation measures, additional mitigation measures and/or changes to construction or operational management practice, which would bring the situation back into conformity with expectations. - Revise the EMP accordingly. - Ensure that all actors are notified of revisions to the EMP. ACTION BY MONRE: - Monitor these actions.	At specified times during the construction and operational phases of the project.	Project owner	Project documentation	Documentation exist (yes or no)

	What?	When?	Who?	Monitoring what?	Tested how?
13	To conduct periodic audits of post-EIA implementation.				
13.1	The key difference between this and the monitoring described in 10, 11 and 12 above is that whereas in those cases the responsibility rests with the project owner, in this case the responsibility rests with regulatory authorities. In simple terms, this activity is concerned with ensuring that what the project owner says is true is in fact actually true. Various levels of checking should be conducted: - Periodic inspections (preferably unannounced) of the site and operations, to ensure that environmental and related safety measures (e.g. correct storage of pressurised gases) are being properly respected. - Period audits of project records in relation to environmental performance, to verify that records are being properly maintained in conformity with applicable quality management procedures. We recommend that an independent and certified quality management auditor should be appointed for this purpose. - Periodic environmental monitoring campaigns, in which regulatory authorities collect information independently of the project owner.	On an ad hoc basis throughout the lifetime of the project.	MONRE / DONRE	Environmental parameters specified in the post-EIA environmental monitoring programme.	Comparison with project data, also compliance checking.

	What?	When?	Who?	Monitoring what?	Tested how?
	The information obtained serves as a check that the results being reported by the project are properly representative of the actual situation.				

Figure 1: Overall process of post-EIA implementation



IV. Post-EIA environmental monitoring

1. Overview

Post-EIA environmental monitoring should be based upon the format that the World Bank uses for projects that it co-finances. There are other guidelines published by the various international financing institutions, but the World Bank's presentation is simple, to-the-point and covers all the necessary considerations.

It is impossible to generalise on the subject of post-EIA environmental monitoring or indeed of environmental monitoring in any situation. It is one of the few areas of environmental management in which practical experience is at least as valuable as academic learning, in terms of equipping the practitioner to understand all of the complexities and nuances of variation that make the environment as a whole such a complicated system to manage.

The discipline of experimental design is one of the most neglected of the disciplines that are in fact of greatest importance to post-EIA environmental monitoring. Experimental design is the design of any information-gathering exercise where variation is present, whether under the full control of the experimenter or not. Environmental monitoring, therefore, is exactly the type of "experiment" that the discipline is intended to address. Operation monitoring, such as the day-to-day checking of dust levels at the perimeter of a construction site, is fairly easy to specify, because the nature of it is easy to understand and fits with most people's preconceptions about monitoring. Longer-term monitoring, however, is a potential minefield for people who lack the experience to discern the strengths and weaknesses in data sets. One example will illustrate the potential risks.

Assume that samples of water from a particular location on a river have been collected and analysed every month, for three years, in order to monitor ammonia concentrations. There are therefore 36 observations of ammonia within that period. A simple calculation reveals that the coefficient of variation of the data (the ratio of the standard deviation to the mean) is 2.50. An inexperienced practitioner might assume that this represents quite a good set of data for the purposes of making decisions. In fact, while the data may be sufficient for making a reasonably well-informed estimate of the arithmetic mean, the uncertainty attaching to any estimates of 90^{th} and 95^{th} percentiles is significantly higher. This is relevant because such percentiles are often the basis for the quality requirements expressed in environmental legislation. Furthermore, if these data are used to determine whether the river failed to

comply with a limit value expressed as a 95th percentile, four out of the thirty-six samples (i.e. more than 11% of the samples) would need to fail before one could say with reasonable confidence that the apparent failure were genuine. This is an example of the application of binomial probability theory to which Chapter 3 above refers.

Monitoring should always be objective-oriented. When planning monitoring, one should always consider at least the following questions:

- What decisions are we aiming to make on the basis of the information that we are planning to collect? If one is not intending to make any decisions, then in fact one is not intending to do anything useful with the data. Conversely, if there is any cost attaching to collecting the data (and there usually is), then one needs to be able to justify that cost in terms of the decisions that one intends to make.
- How confident do you need to be that you are in fact making the right decision? The more data, the more confident you can be; but equally the more money you will need to spend. Therefore there is a trade-off between cost and confidence. The level of confidence is also linked to the inherent variability of the data (as the example above illustrates). So one cannot design a monitoring programme without having at least some basic understanding of the parameters to be monitored and their typical statistical properties of variation.
- Based upon this, how many observations do you need and at what time intervals? Bear in mind that repeating seasonal or diurnal components of variation may be present. These introduce additional variation that requires more intensive sampling in order to offset the impact of this upon the confidence with which you can draw conclusions.

These are the issues that people tend to overlook. More technical issues, such as what equipment should be used, what laboratory analysis methods, and so on, are in fact of only secondary importance: if the basic design of the programme in statistical terms is wrong, then there is no state-of-the-art equipment or international reference point that can compensate for that.

Try to avoid placing too much reliance upon databases and computer simulation models. A good database is of course a useful tool for experienced practitioners; but it is more important in the first instance to develop an intuitive understanding of the environment by spending

time in the field and observing first-hand how the environment responds to various influences. Computer simulation models can give an appearance of superficial credibility to a situation, but the most important axiom to remember is the English expression, “Rubbish in = Rubbish out”. A simulation model cannot compensate for deficiencies in data; but it can enable an inexperienced practitioner to make many more mistakes with inadequate data than would otherwise be the case. In other words, computer models should be used only by people who know what they are talking about. In the context of post-EIA environmental monitoring, possibly the most useful application of computer simulation modelling is the atmospheric dispersion of airborne emissions. This is a discipline for a skilled specialist and should not be undertaken otherwise.

2. Guidelines

The post-EIA environmental monitoring programme should be defined using the following pro-forma (source: World Bank) for each parameter to be monitored:

Phase	**What** is the parameter to be monitored?	**Where** is it to be monitored?	**How** is it to be monitored?	**When** is it to be monitored?	**Why** is it to be monitored?	What is the **cost** of monitoring it?	**Who** is responsible for monitoring it (and paying for it)?
During project preparation							
During project construction							
During project operation							

ANNEX 1

STAKEHOLDER ENGAGEMENT PLAN (SUGGESTED CONTENTS)

(based upon Annex 6 of the EIB's Environmental and Social Practices Handbook)

Note:

In principle a stakeholder engagement plan should apply to the entire EIA process and project life cycle. However, if this is to be used as the basis for revised guidelines on post-EIA monitoring, it may be considered appropriate to adapt the context accordingly.

1.0 Introduction
- 1.1 Project Description
- 1.2 Public Consultation and Project Design, Construction and Operations
- 1.3 Project Purpose and Objectives
- 1.4 Total Project Cost, Associated Financiers and Lenders

2.0 Public Consultation Regulations and Requirements
- 2.1 Local Regulations and Requirements
- 2.2 International Best Practice

3.0 Previous Public Consultation and Disclosure Activities
- Summarise all public consultation and information disclosure activities to date. This should include the types of information disseminated, the locations and dates of meetings, descriptions of those individuals/groups involved.
- An overview of issues discussed, how they were responded to and how they were communicated back to the public concerned.

4.0 Stakeholders
- Provide an inventory of key stakeholder groups who will be informed and consulted about the project.
- Describe interactions between stakeholders[2].

[2] The EIB and other IFI procedures contain more detailed social provisions than noted here. The extent to which those provisions may be relevant will depend upon the specific Vietnam country policy of each IFI.

5.0 Stakeholder Engagement Plan

5.1 Goals of the Plan

5.2 Methods for Information Dissemination and Public Consultation

5.3 Information Disclosure and Public Consultation

5.3.1 Scoping of issues

5.3.2 EIA follow-up review

5.3.3 Construction and Operations

5.3.4 Follow-up activities, including monitoring

6.0 Schedule and Timetable

- Provide a schedule, detailing when public consultation and information disclosure will occur, with which stakeholder groups, at what stages of the EIA follow-up and in what formats.

7.0 Resources and Responsibilities

- Indicate budgets allocated to the realisation of all activities foreseen in the Plan.
- Indicate management and expert staff devoted to, and responsible for, the public consultation and disclosure programme.

8.0 Grievance Mechanism

- Describe how people can bring any concerns about the project to the attention of the project authority.
- Describe the procedure that the project authority will adopt in order to ensure that any such concerns expressed are considered and addressed in a fair and equitable way.

9.0 Monitoring and Reporting

- Identify where and when the results of public consultation and information disclosure will be reported. This should include as a minimum reporting on the results of consultations during the preparation of the EIA itself and annual monitoring reports.