

9.0 Development of a Biodiversity Offset Delivery Plan

9.1 INTRODUCTION

Objective 4 of this Biodiversity Strategy (see Section 6.2) requires that residual impacts on biodiversity values be appropriately accounted for through an offset program of conservation/rehabilitation measures, guided by good industry practices. Planning and delivery of conservation/rehabilitation projects is not Esso Highlands Limited's core business nor does it have a right to make conservation decisions on lands it does not control. Fundamental to the Project's offset program, therefore, is the involvement of stakeholders who have the knowledge, experience, skill and rights to help determine what may be appropriate and effective offsets and how they may be delivered. At this early stage of Project development, this Strategy therefore presents an outline only of an offset program that is being contemplated for the Project so as not to close off structures and options that stakeholders may demonstrate are more appropriate.

Following stakeholder involvement, a detailed Biodiversity Offset Delivery Plan will be produced that will detail what, how and when offsets may be delivered.

9.2 INTERNATIONAL GUIDANCE AND REFERENCES

Biodiversity offset is subject to a variety of definitions that reflect differing interpretations of terms such as mitigation and compensation, and concepts such as no net loss, net benefit, the mitigation hierarchy of avoid, minimize, restore and offset impacts on biodiversity. The definition of biodiversity offsets adopted here is (BBOP, 2009a):

conservation outcomes resulting from actions designed to compensate for significant residual diverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal...is to achieve no net loss and preferably a net gain of biodiversity.

Given that no net loss and preferably net gain is the aim of the offset program, there is a range of experience that can be drawn upon from other jurisdictions. Biodiversity offset frameworks already in place or being developed include:

- Australia:
 - ◆ Net Environmental Benefit (Western Australia).
 - ◆ Significant Environmental Benefit (South Australia).
 - ◆ Native Vegetation Framework (Victoria).
 - ◆ Biobanking Scheme (New South Wales).
 - ◆ Environmental Offsets Policy (Queensland).
- United States of America:
 - ◆ Habitat Evaluation Procedures.
 - ◆ US Wetlands Compensatory Mitigation.
- South Africa:
 - ◆ Western Cape Draft Provincial Guideline.
- New Zealand:
 - ◆ Risk Index Method and Averted Risk Formulae.
- European Union:
 - ◆ Resource Equivalency Methods for Assessing Environmental Damage.
- International:
 - ◆ Business and Biodiversity Offsets Program (BBOP).

Box 9.1 Principles for the Biodiversity Offset Delivery Plan

A review of practices implemented or being developed internationally has allowed the following principles to be developed for the Biodiversity Offset Delivery Plan.

1. A no net loss approach has been adopted, but it is recognized that the suite of example offset projects currently identified, if successful, could potentially provide some net gain and a range of conservation outcomes, well beyond the Upstream Project Area, with no added cost.
2. Prior to developing offsets, the Management Hierarchy of avoid and mitigate was followed.
3. A Biodiversity Offset Delivery Plan cannot replace irreplaceable or extremely vulnerable biodiversity components.
4. Local culture, safety and practicality limit potential offset projects. Offset projects that might clash with local cultural norms, are unsafe, or impractical to deliver will not be pursued.
5. The Biodiversity Offset Delivery Plan recognizes that the key residual impacts on biodiversity values requiring offsetting occur in a landscape that is not fragmented and is in a less-disturbed condition based on the scientific and local information available for the area.
6. Landholder engagement is key to the offset program's success. Any offset plan would require permission and most likely participation from landholders before it could proceed. The final arbiters of which offsets can go ahead on particular parcels of land are the landholders, rather than the Government of PNG or Esso Highlands Limited.
7. Initially, offset projects might need to comprise a range of measures that can be presented to landholders for consideration and may not be the final set of offset projects that are implemented.
8. The final agreed-upon offset projects would be made publicly available.

Most offset frameworks appear to have sought to reduce uncertainty for development projects and provide a scientific or engineering approach to offsets, which has in some instances resulted in complex systems but has provided consistency across all types of projects within each jurisdiction. These existing national and state frameworks have the advantage of being tailored to local environmental, legislative and social conditions.

BBOP has been used for guidance in developing the principles of the PNG LNG Project's Biodiversity Offset Delivery Plan.

9.3 DEVELOPING BIODIVERSITY OFFSETS IN THE PNG CONTEXT

The offset plan must take account of the uniqueness of PNG and the circumstances of the Project. It has to be recognized that:

1. Papua New Guinea has no system, formal or otherwise, guiding the development of an offset plan.
2. Programs developed in jurisdictions with fragmented and degraded landscapes elsewhere have limited relevance in extensively forested tropical landscapes such as those in PNG.
3. Acquiring or managing land as an offset is not a likely option because most land in PNG is subject to various forms of customary, and hence inalienable, tenure and there is little land solely controlled by government.
4. Landholders successfully practice subsistence shifting cultivation; hence, to acquire lands for a biodiversity offset project would likely affect landholders' livelihoods.
5. There are limited offset opportunities on government-controlled lands in the Upstream Project Area.
6. Non-forested lands that may warrant restoration are rare in the Upstream Project Area and are mostly restricted to roadsides. Non-forested land is part of the population's agricultural base and provides for part of their livelihoods. Thus, there is little potential for undertaking offset projects on this type of land.
7. Protected area establishment and management in PNG is difficult because most land is in customary tenure.

9.4 OFFSETTING RESIDUAL IMPACTS

Objective 4 of this strategy requires that residual impacts on biodiversity values be offset (see Table A5.4 of Appendix 5). Table 9.1 relates residual impacts to the three scales used to develop this Biodiversity Strategy. The residual impacts requiring offsetting such as indirect Project-associated impacts and edge and barrier effects, are mostly difficult or impossible to quantify and demonstrating that offsets are relevant to the residual impacts will be difficult. This will be an important element of consultation and it is likely some system of expert judgment will be required.

Table 9.1: Residual impacts associated with the Project ranked as moderate or higher

Impact	Description	Entire Upstream Project Area	Priority Ecosystems	Focal Habitats
Direct effects on fauna	Edge effects in high-altitude karst.		X	X
	Barrier and erosion impacts in high-altitude karst.		X	X
	Barrier and erosion impacts in high cuttings.		X	X
Overall habitat loss		X	X	
Indirect impacts	Fire.	X	X	X
	Introduction and spread of alien species and diseases.	X	X	X
	Enhanced access.	X	X	X

Esso Highlands Limited has approached this by challenge by adapting the Victorian Native Vegetation Framework (Parkes, Newell & Cheal, 2003; DNRE, 2002) as a guide in planning its residual impacts offset program. This method was selected because of its maturity.

The Victorian Native Vegetation Framework calculates a quantitative offset debt based on the formal calculation of 'habitat hectares' that a development will clear. This is a function of the size of the area cleared, its condition, landscape context, and defined conservation value. In the State of Victoria, this debt is then repaid by acquiring and managing other lands that meet the same quantitative value of the debt, or by some agreed conservation program. This requires an analysis of the potential offset actions that are available in the form of lands that can be reclaimed and/or acquired for conservation purposes equivalent to the debt. In this system, the emphasis is on acquiring conservation lands and the proportion of the debt that can be met by revegetation schemes is restricted.

It is not possible for the Project to follow this system completely because, as indicated above, most lands in PNG are under the control of landholders and, therefore, obtaining conservation lands is extraordinarily difficult. Instead, the framework was used in order to calculate a habitat hectare debt based on the area to be cleared by the Project. Then, instead of using this figure to determine the area of habitat to be secured for an offset, it was used as a surrogate to estimate an approximate amount to invest in offset activities. Rules for developing offsets were then developed and it is at this stage that consultation with stakeholders will take place to determine the suite of offset projects that will be implemented.

There were sufficient data available from the EIS studies to calculate a habitat hectare debt with a slightly modified set of algorithms (Appendix 7). The initial calculation was a debt of 6,586 habitat hectares²⁶. However, all but 15 meters of the ROW will be allowed to regenerate and so this means that, after 30 years,

²⁶ This was based on estimates of forest loss in the EIS plus allowances for Komo Airfield. An assessment of as-built losses after construction may require the calculations to be revisited.

enough land will have regenerated to reduce this debt to 3,633 habitat hectares. Estimates were then made of how much it might cost to reforest this amount of bare land²⁷, which provided a base case for deciding how much to invest in offsets²⁸. It needs to be remembered that this estimate of offset debt included multipliers and so resources would be committed above and beyond that which would be required to simply purchase or replant the actual area of habitat lost.

Given that land purchases for conservation initiatives will be unlikely to form the bulk, if any, of the offset projects, it is considered that the best approach is to choose offsets that are most suited to the specific circumstances and stand the optimal chance of long term success in securing additional conservation outcomes (BBOP, 2009b).

9.5 CHOOSING OFFSET PROJECTS

In developing offset projects with stakeholders, there needs to be an awareness of the following:

- It is difficult to quantify what effect a particular offset project will have on the Project's residual environmental impacts on biodiversity values, and expert judgment will be a key component in the rationale for offset selection.
- No offset project has a 100 percent chance of success.
- There is likely to be a time lag between investment in an offset and achieving the full effect of the conservation benefits of an offset.
- Restricting offsets to be carried out in the Upstream Project Area may be suboptimal, and better outcomes may be achieved elsewhere. This is particularly the case for Critically Endangered and Endangered species.
- Offset projects involving culturally important biodiversity need to be included in considerations of offset projects if there are project residual impacts on these values.
- Ultimately the Government of PNG and landholders will be the final arbiters of what offsets may proceed.

A minimum set of preliminary criteria for the selection of biodiversity offset projects have been developed as follows:

1. The proposed project must address residual impacts on biodiversity values as identified in this Biodiversity Strategy to the extent practicable given the in-country challenges (see Table 9.1 and Appendix 5, Table A5.5).
2. Ideally, the proposed project is carried out in the Upstream Project Area but may be carried out elsewhere or may be carried out nationally.
3. If not carried out in the Upstream Project Area, the project should target the same biodiversity values as are impacted by the project in the Upstream Project Area.
4. For species-based conservation projects, the proposed project must target threatened species of biodiversity listed in the EIS and in priority order of Critically Endangered, and Endangered as listed in this Strategy.
5. Projects targeting Critically Endangered and Endangered species are best carried out where the best outcomes can be generated.
6. Projects involving managing indirect impacts, e.g., exotic species management, will be favored if they have a national or regional benefit beyond the Upstream Project Area.
7. If the proposed project has a research component, it must be an obvious requirement for the offset to be implemented and must be subject to external peer review.

²⁷ This was based on costs of employing, for example, a PNG forestry, environmental and/or landowner company, not the costs for using foreign-based consultant companies.

²⁸ This figure will not be made public as it may compromise discussions with stakeholders.

8. Biodiversity survey components of offsets must be within the Upstream Project Area and focused on the new species discovered in the Upstream Project Area and/or on the Critically Endangered or Endangered species.
9. The potential must exist that landowners, and/or other relevant national stakeholders, will be in favour of the offset.
10. Every project is required to have measures of success and a monitoring program built in and budgeted for and is required to supply results of monitoring annually.
11. Preference will be given to projects that have socioeconomic benefits.

In addition, the following may be considered:

- Will the project have a positive social benefit?
- Will the project have a positive climate benefit?
- Is there technical and management capacity to implement the offset?
- Is there a management system capable of delivering the project?
- Is there a track record of delivering conservation outcomes?
- Can the project be managed for the long-term in coordination with the Government of PNG and relevant stakeholders?
- Does the project take account of PNG's national biodiversity conservation priorities, as provided in the National Biodiversity Strategy and Action Plan (NBSAP)?

9.6 MANAGEMENT

There are a variety of ways offset projects may be developed and delivered by the Project:

A. Development

- Projects can be designed internally.
- Suitable existing projects can be investigated.
- Projects can be suggested by others.
- A system can be set up for submissions of projects on a competitive basis.

B. Delivery Options

- Esso Highlands Limited contracts and manages projects individually.
- Esso Highlands Limited invests in the support and/or expansion of existing conservation projects that meet the criteria.
- Funds tied to specific projects are invested in conservation trust or endowment funds managed by others.
- Trust or endowment funds are set up and run by a board with Esso Highlands Limited as a board member.
- Esso Highlands Limited contracts out the offset program to a third party.

Prior to stakeholder consultation all the above remain options.

Table 9.2 outlines the steps required to finalize the Biodiversity Offset Delivery Plan.

Table 9.2: Steps required to finalize the Biodiversity Offset Delivery Plan

Step	Timing
Establish Biodiversity Working Group & Charter	H2 2010
Stakeholder Communication & Consultation ¹	H1 2011
Finalize process for review and approval of Biodiversity Offset Projects	H2 2011
Review and approval of proposed Biodiversity Offset Projects	H2 2011 – H2 2012
Finalize and commence execution of Biodiversity Offset Delivery Plan	H2 2012

¹ Stakeholders will include as a minimum national and international NGOs and research institutions, government departments and possibly industry. There is an extensive and long-running stakeholder consultation process covering government agencies, local communities and national NGOs run by PNG LNG Project Public Affairs and SELCA. The Biodiversity Offset Delivery Plan will capitalize upon the mechanisms already in place and consultation with stakeholders will be through this group.