

Management of onshore biodiversity

Overview

ExxonMobil is committed to operating the PNG LNG project in an environmentally responsible manner.

The project will be constructed and operated in accordance with the laws and regulations of Papua New Guinea and internationally accepted industry standards and practices.

Management plans are in place to prevent, mitigate and otherwise control adverse environmental aspects and enhance beneficial aspects.

Onshore project setting

The remote nature of some parts of the project area and their low population density mean the conservation values of these locations are high, with numerous local landforms including sinkholes, pinnacles, towers, caves, springs and waterfalls.

The environment in the project areas ranges from northwest-southeast trending ridges and ravines, volcanic landforms of the high elevations, to the lowlands of Kikori basin and delta landforms of the Gulf of Papua.

- Plant diversity is high with between 6,000 to 12,000 species of plants.
- Fauna is also diverse with approximately 90 species of mammals, 400 species of birds and nearly 50 species of bats.
- Annual rainfall varies across the project area from 2,500mm at Tari to 4,500mm at Kutubu and 5,700mm at Kikori.
- General remoteness, lack of soil fertility and tropical diseases have kept human populations low.
- Industrial development to date in the Kikori River basin has involved oil and gas production and commercial logging near the coast.

Sensitive areas

As part of the environmental assessment undertaken for the project, ten important features have been identified which require application of appropriate (both general and specific) mitigation measures:

1. Low-altitude forest near Juha – remote, inaccessible, sparsely populated and virtually undisturbed.
2. Lower forest on Hides Ridge – largely undisturbed with high biodiversity.
3. High-altitude forest above 1,800 metres – volcanic geology and similar to Hides in biodiversity, values, conservation status and management priority.
4. Caves – abundant in the project area, some of which are habitat for bats.
5. Sinkhole swamps – widespread but locally important as frog habitat.
6. Upland streams – habitat for frogs, birds and some rodents.
7. Swamp forest – habitat for turtles, crocodiles and birds.



8. Stable areas in landslide and erosion-prone areas.
9. Lowland rivers in stable landscapes – crocodiles, turtles and bird refuges during dry periods.
10. Off-river water bodies – crocodile breeding habitat.

Also of note is the Lake Kutubu Wildlife Management Area, habitat for local fish and also an internationally significant Ramsar listed wetland area.

Further information

Esso Highlands Limited
 Level 5, Credit House
 Cuthbertson Street
 (GPO Box 118)
 Port Moresby NCD
 Papua New Guinea

Tel +675 322 2111
 Fax +675 320 3457
www.pnghg.com

Management and mitigation

Based on the findings of extensive environmental impact assessment, the project has developed environmental mitigation measures to protect the environment from direct and indirect impacts.

Mitigation measures intended to reduce the potential adverse ecological effects of the project include:

- Avoidance of particularly sensitive ecological features.
- Minimization of vegetation clearance and overall project footprint.
- Measures to prevent the introduction and spread of weeds and animal pests.
- Control of erosion and sedimentation and resulting impacts to the water quality.
- Prompt reinstatement and stabilization of banks following construction of river crossings.
- Controlled access to new project roads.
- Use of timber from approved sources only.
- Proper handling, treatment and disposal of project solid wastes and wastewaters.

Conservation

The direct impact of the project on biodiversity will be localized, with limited habitat loss from land clearance.

- Study of the 12 biological regions affected by the project concludes none are at risk due to land clearing.
- The estimated total habitat loss from clearing is approximately 2900 hectares, which translates to about 0.1% of the total area of vegetation in the regions (see table below).
- Hides Ridge is identified as the most sensitive area due to its rugged terrain, high biodiversity and slow rates of plant regeneration. Specific measures are in place including reduction of the area of clearing required and control of access. With the proposed mitigation, overall impacts in this area are assessed as low.
- Experience from existing petroleum developments in the Kikori River basin shows that direct impacts are restricted to the locality of facilities.
- Overall, the Environment Impact Statement finds that the mitigation measures proposed should maintain the general conservation values of the project area.

Estimated project land use

Total area of vegetation	2.2 million ha
Previously undisturbed forest impacted	1,000 ha
Previously disturbed forest impacted	500 ha
Heavily disturbed forest impacted	300 ha
Other (logged forest, existing facilities, etc.)	1,100 ha
Total area impacted by the project	2,900 ha
Percentage of vegetation lost	0.1%