
Appendix (i)

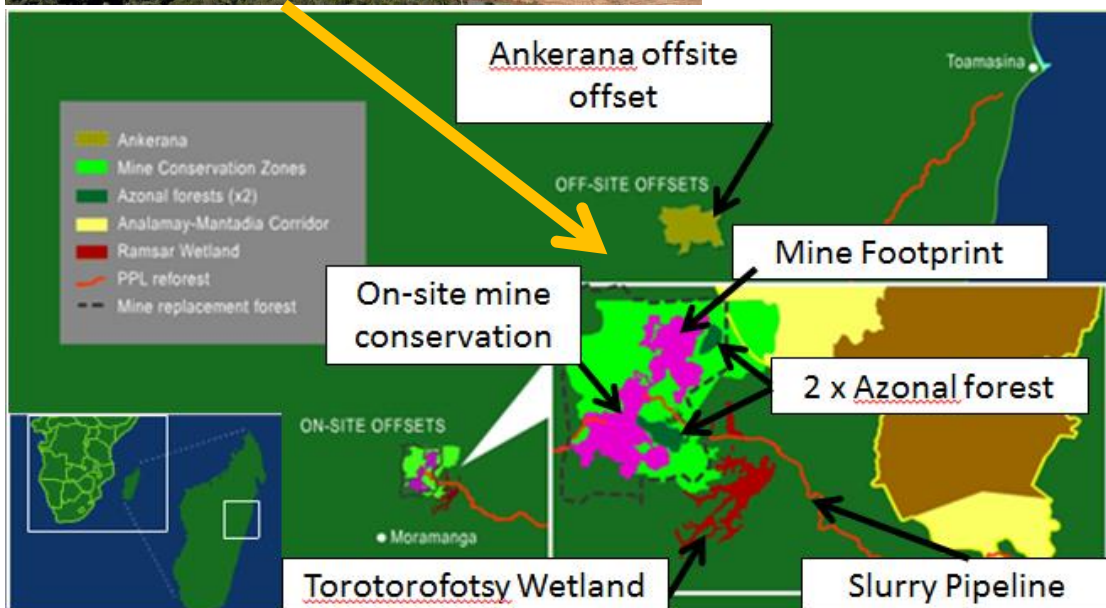
Case Study Reviews

CCI Project (2015) – Strengthening
Implementation of the Mitigation Hierarchy:
Managing Biodiversity Risk for Conservation
Gains

Contents

Ambatovy Mine, Madagascar	2
Carmichael Coal mine and rail project, Australia	5
Cobre Panamá mine, Panama	8
Corrib Gas Project, Ireland.....	10
Dampier Salts, Australia – An example of positive impact.....	Error! Bookmark not defined.
Rössing Uranium Limited, Namibia	12
Sakhalin Energy, Russia	17
Simandou Project, Guinea	20
Yemen Liquefied Natural Gas (YLNG) Project, Yemen	24
West Heath Quarry, UK	28
Block Island Wind Farm, USA	31
Lewis Wind farm proposal, UK – Avoided Development.....	33
Nam Theun II Hydropower Project, Laos.....	35
Thames Basin Heath Development Project, UK.....	38
Pasto-Mocoa Road, Colombia	41
British American Tobacco, global	44
Asia Pacific Resources International Holdings Limited (APRIL)	47
Kingfisher plc. Net Positive for Timber	50

Ambatovy Mine, Madagascar



Avoidance actions:

Type of Avoidance	Action Taken
Spatial	On-site avoidance was achieved by setting aside two conservation areas (totalling 305 ha) within the mine operation area. The goal is to prevent the irreversible loss of local endemic species and to safeguard the two blocks of azonal forest that provide an important genetic reservoir from conversion. These two blocks of azonal forest form part of a larger area (3605ha) of “on site” conservation forests located within the lease area of the mine, and is currently managed by the company.
Design	<p>The ore pipeline was re-routed during the construction phase to prevent impact on several forest fragments and sensitive habitats.</p> <ol style="list-style-type: none"> Vohimana Forest massif: the pipeline was tunneled under this forest massif, in order to prevent forest clearing. Critically Endangered golden mantella frog <i>Mantella aurantiaca</i> (IUCN, CR): the pipeline was diverted during the construction phase of 2009, around breeding ponds of golden mantella frogs, within the Torotorofotsy marshes.

Temporal	Fat-tailed dwarf lemurs were found to be hibernating in one of the areas due to be cleared for ore extraction. Due to their hibernation they had not been detected in the area during survey work and thus extraction had to be delayed to avoid impacts during this season.
----------	--

When and by whom?

- The main avoidance decisions were made during the initial planning phase of the project. Smaller avoidance decisions have been made throughout project lifecycle.
- Decisions were reported to be made by the project director and the environmental director, in consultation with the mining engineers.
- Day to day communication and weekly planning meetings took place to decide on mitigation measures

Drivers:

- Corporate commitments: Committed to adhere to external standards and resources (BBOP, GRI, ICM principles, and ISO 9001).
- Regulatory: Ambatovy is committed to complying with the laws and frameworks that regulate mining activities nationally and globally e.g. Investment and Environment Compatibility Regulation, Large Mining Investment Act, and the Madagascar Action Plan (refers to mitigation/biodiversity offsets).
- Financing: compliance with IFC Performance Standards and lender requirements
- Reputational: pressure from NGOs and local people

Tools/approaches:

- Species specific:
 - Fauna: Biological surveys, supplementary to the baseline data, in the clearing perimeter and surrounding areas were conducted prior to any forest clearance. This was to create an inventory of fauna present, particularly priority species (IUCN categories EN and CR). A spatial and genetic survey (endemicity assessment) was conducted for freshwater fish to determine whether the species present were endemic to the mine footprint.
 - Flora: A list of Species of Concern (SoC) (defined by their level of endemicity), was completed during the ESIA baseline studies in collaboration with the project's botanical expert partner. Pre-clearance work involved identifying whether the SoC were present in the forest clearing perimeters and in the conservation zones outside the mine footprint, to avoid potential local species extinction.
- Habitat: A forest conservation zone programme has been established to secure the survival of priority species in the forest adjacent to the mine footprint.

Benefits:

- **More effective risk management**
- **License to operate:** demonstrating good environmental management practices and producing positive conservation outcomes was important in securing license to operate. This was particularly important in Madagascar given the global significance of its biodiversity.

- **Access to capital:** Project's shareholders state that the mitigation measures carried out by Ambatovy have supported lender banks confidence in the company and helped secure access to capital. **Competitive advantage:** Reputational benefits from the project are thought to lead to easier access to land, human and financial resources for future projects in Madagascar and globally.
- **Maximising economic returns:** although costly, the environmental investment was seen to be necessary in terms of securing the project and reducing risk.

Challenges

- Securing corporate agreement for set-asides that will reduce mineable resources.
- Ensuring adequate human resources and technical capacity to undertake all needed activities over large areas and within short timelines
- Achieving a common understanding of the commitments needed to ensure species conservation between different stakeholders (internal and external)
- Building the technical skills to efficiently manage the implementation of BBOP guidelines
- Understanding the importance of the socio-economic value of biodiversity.
- The need for adaptive monitoring and management plans e.g. the discovery of the hibernating fat-tailed dwarf lemur (*Cheirogaleus medius*), in an area planned for excavation. The fact that this lemur hibernates for winter meant that it had initially not been detected making it hard to plan for. This highlights the need for ecology experts and robust surveys that capture seasonality.

Sources of information:

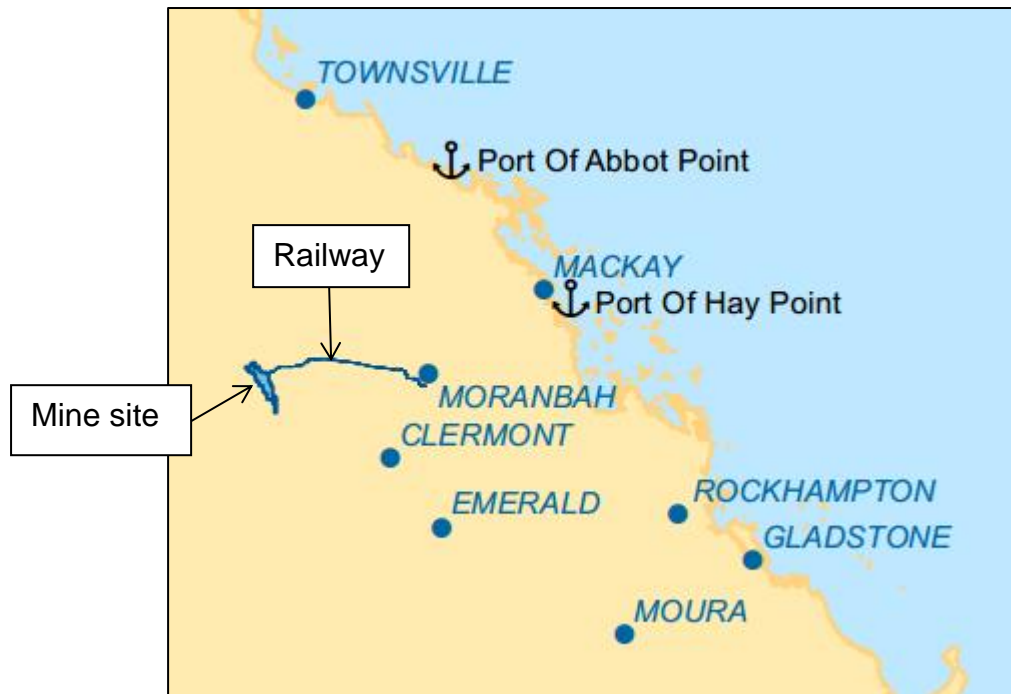
- Ambatovy ESIA – publicly available online
- Discussions with various individuals involved with the Ambatovy project - Andrew Cooke, Mathias Vandelle, Rivola Andriamparany, Josia Razafindramanana

Carmichael Coal mine and rail project, Australia

Background:

Adani is proposing to develop a 60 million tonne (product) per annum (Mtpa) thermal coal mine in the north Galilee Basin approximately 160 kilometres (km) north-west of the town of Clermont, Central Queensland. All coal will be railed via a privately owned rail line connecting to the existing QR National rail infrastructure near Moranbah, and shipped through coal terminal facilities at the Port of Abbot Point and/or the Port of Hay Point (Dudgeon Point expansion). The Carmichael Coal Mine and Rail Project will have an operating life of approximately 90 years.

This project will build Australia's largest thermal coal mine in the north Galilee Basin approximately 160km north-west of Clermont in Central Queensland, linked by a new 388 km standard gauge North Galilee Basin Rail Line to two terminals at Abbot Point Port near Bowen. The port, rail and mine components of Carmichael coal project are required to comply with science based environmental conditions and safeguards overseen closely by both state and federal environment departments and the Great Barrier Reef Marine Park Authority.



Impact:

The Project is comprised of two major components:

- Mine: a greenfield coal mine over EPC1690 and the eastern part of EPC1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities (the Mine) and offsite infrastructure.
- Railway: a greenfield rail line connecting the Mine to the existing Goonyella rail system to provide for export of coal via the Port of Abbot Point and/or the Port of Hay Point (Dudgeon Point expansion).

Avoidance:

Type of Avoidance	Action taken
Spatial	Infrastructure particularly to the east of the project area designed around the remnant vegetation where possible.
	Avoided ecologically sensitive areas
	Avoided clearing of vegetation and major earthworks during overland flow events.
	Prevented the mobilisation and transport of sediments
	Selected crossing locations to avoid or minimise disturbance to important areas of aquatic flora, waterholes, watercourse junctions and watercourses with steep banks
	Used existing access tracks and other previously disturbed areas where possible
Temporal	Avoided mortality of aquatic fauna during drainage of Brigalow Dam and the dams on North Creek and Obungeena Creek. Fauna salvage and relocation required where there is water in the dams at the time of construction
	Avoided potential mortality of aquatic fauna during construction within riparian zones and within the bed and banks of ephemeral creeks. Construction activities to be undertaken during dry or controlled conditions.
Design	Designed fauna-friendly culverts and fish passageways to facilitate fauna and fish passage
	Designed measures to condense and minimise the footprint of disturbance in the riparian zones

Motivations:

Legislation:

- Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
- The Commonwealth EPBC Act Environmental Offsets Policy (DSEWPaC, 2012)
- Commonwealth EPBC Act Environmental Offsets Policy (Consultation Draft)
- Queensland Nature Conservation Act 1992 (NC Act) and Nature Conservation (Wildlife) Regulation 2006
- Queensland Vegetation Management Act 1999 (VM Act)
- Queensland Sustainable Planning Act 2009
- Queensland Land Protection (Pest and Stock Route Management) Act 2002
- Queensland Environmental Protection Act 1994 (EP Act)
- Queensland Environmental Protection (Water) Policy 2009
- The Queensland Policy for Vegetation management Offsets (Version 3) (DERM, 2011a) – applicable to Rail Project
- The Queensland Biodiversity Offsets Policy (QBOP) (Version 1) (DERM, 2011b) – applicable to Mine Project
- Queensland Government Environmental Offsets Policy (QGEOP)
- State Development and Public Works Organisation Act 1974 (SDPWO Act)

- State Planning Policy 4/11: Protecting Wetlands of High Ecological Significance in Great Barrier

Documentation:

Adani Mining Pty Ltd (Adani) began formal environmental assessment of the Carmichael Coal Mine and Rail Project in 2010, through preparation of an Environmental Impact Statement (EIS), to address the State and Federal government approval requirements. The Project was declared a 'significant project' under the State Development and Public Works Organisation Act 1971 requiring an EIS. The Project is also a 'controlled action' and requires assessment and approval under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. An EIS has been prepared in accordance with the bilateral agreement between the Commonwealth of Australia and the State of Queensland.

The EIS has been prepared in accordance with the Terms of Reference¹ prepared by the State and Federal government. It has been **developed with the objective of avoiding or mitigating potentially adverse impacts to environmental, social and economic values and enhancing positive impacts.** Where there are unavoidable residual impacts, offsets are proposed in accordance with State and Federal government policies.

The EIS was released by the Coordinator-General for public and local, State and Federal government agency consultation from December 2012 to February 2013. During this time, hard copies of the EIS were displayed at five libraries in the area, which alongside information sessions, gave local stakeholders the opportunity to learn more about the Project and to discuss the EIS with the project team.

All submissions received during public consultation were assessed by the Coordinator-General and Adani was instructed to prepare a Supplementary EIS (SEIS) in order to address and respond to submissions made during the public consultation of the EIS. Adani prepared the SEIS in accordance with section 35 (2) of the State Development Public Works Organisation Act 1971 and the bilateral agreement between the Commonwealth of Australia and the State of Queensland. The SEIS provides revised and additional environmental studies undertaken to reflect the amendments made to the Project since the EIS publication and to address matters raised in submissions. It includes revised technical studies, impact assessment and management plans for a range of project issues. Adani has also undertaken engagement with stakeholders during the development of the SEIS. The SEIS was also released for public consultation.

¹ <http://www.dsdip.qld.gov.au/resources/project/carmichael/tor-carmichael-coal-mine-and-rail.pdf>

Cobre Panamá mine, Panama

Background:

Cobre Panama is a large open-pit copper development project in Panama. The concession is located 120 kilometres west of Panama City and 20 kilometres from the Caribbean Sea coast, in the district of Donoso, Colon province, in the Republic of Panama. The concession consists of four zones totalling 13,600 hectares. Following the completion of Quantum's acquisition of Inmet Mining in April 2013, First Quantum assumed an 80% equity interest in Minera Panamá, S.A. ("MPSA"), the Panamanian company that holds the Cobre Panama concession. MPSA was incorporated under the laws of the Republic of Panama in January 1997 and has a mineral concession to explore and exploit the Cobre Panama property.



<https://ioepanama.files.wordpress.com/2013/03/minera-panama.jpg>

Avoidance:

Type of Avoidance	Action Taken
Spatial/Temporal	Turtles are not covered in the approved Environmental and Social Impact Assessment (ESIA) for the project. However, as recognised by the company's environmental team, the power plant and port facility on the Caribbean coast is adjacent to a turtle nesting beach at Playa Rincón and two endangered sea turtle species, the Green and the Loggerhead, have been found along the coast. First Quantum has therefore taken steps to keep construction activities off the beach to avoid impacts on these species. The company also prohibits the use of floodlights at night, so females won't be deterred from coming ashore to lay their eggs. These measures will continue in the mine's operational phase, when the port will handle outbound shipping of copper concentrate.
Spatial	Protection of Species of Concern identified in the Biodiversity Action Plan. Part of a wider commitment to maintaining the integrity of this segment of the

	Mesoamerican Biological Corridor, a network of protected habitats and adjoining natural ecosystems that extends across Panama and the other countries of Central America.
Spatial	Legal recognition of the Multiple-Use Area (MUA) and development of a management plan for Cobre Panamá that takes into account restrictions on development.
Spatial	Ensuring sources of clean water and maintaining the forested landscape form part of an agreement ratified in 2012 with those residents who are being physically and economically displaced by the project ² . The Biodiversity Action Plan also addresses the potential threat from agriculture and artisanal mining practices as part of a larger commitment to conserve biodiversity throughout the region.

Motivations:

- Company policy to achieve NPI across the lifecycle of the project and adherence to national level regulations for ESIA, as well as the International Finance Corporation's Performance Standards.

Monitoring

- Initial baseline assessment to identify risks and propose mitigation measures
- Followed by a "without-project" conservation assessment to identify a baseline with which to compare the project impacts against.
- This was complemented by a "with-project" assessment to identify the risk factors which would require mitigation.
- Biodiversity Action Plan in place supported by various monitoring programmes and reported to Panamanian environmental authorities (as well as the general public). Special focus on Species of Concern and maintaining the integrity of the Mesoamerican Biological Corridor.

² The resettlement plan for the Cobre Panamá project was developed through extensive stakeholder consultations. The resulting agreement was the product of good-faith negotiations based on internationally accepted principles of free, prior and informed consent, which was defined as follows: "A collective expression of support for resettlement by displaced indigenous peoples... reached through an independent and self-determined decision-making process....undertaken with sufficient time, in accordance with cultural traditions, customs and practices and in compliance with Panamanian law."

Corrib Gas Project, Ireland

Background:

The Corrib gas field development consists of a series of gas wells and seabed infrastructure in the Corrib field, a manifold that will gather the flow of gas from each of the wells, and a pipeline to the onshore gas terminal located at Bellanaboy Bridge. The gas pipeline comes ashore at Glengad on the eastern shore of Broadhaven Bay from where it will run underground to the Terminal. The onshore pipeline will be installed in a tunnel of approximately 4.9 km in length beneath terrestrial and estuarine habitats, of which 4.6 km will be underneath Sruwaddacon Bay, which forms part of the Blacksod Bay/Broadhaven Special Protected Area (SPA) and the Glenamoy Bog Complex Special Area for Conservation (SAC).



Avoidance:

Type of Avoidance	Action Taken
Spatial/Design	Constructed a 4.9 km tunnel to avoid impacts of the onshore pipeline on protected habitats and species within Sruwaddacon Bay. The pipeline tunnel passes beneath the fringe saltmarsh at the shoreline and then under an area of undesignated blanket bog which is recovering and considered to be of Annex I quality.

Documentation:

The 'Corrib Development Biodiversity Action Plan 2014 – 2019', documents the measures undertaken to avoid impacts to, and conserve, biodiversity. The legal designations of the site (both national level and EU level) mandate that strict environmental monitoring is undertaken throughout the project lifecycle. The action plan sets out 12 objectives and targets for the next 5 years of the pipeline development which will see it into the operational phase. These include the protection of habitats and species through appropriate mitigation measures during construction and operation, and maintaining species numbers and diversity within the development footprint.

Monitoring:

Habitats and species will be monitored before, after and during construction. Species records and data collected through quadrat surveys of the habitat will be provided to the national biodiversity database.

Motivations:

Compliance with national and EU legislation is the primary consideration, alongside the companies own commitment to avoid (and mitigate) environmental impacts. The legal aspects are illustrated in the table below.

JURISDICTION	STATUTE
NATIONAL	Wildlife Act, 1976; as amended 2000; includes the Flora Protection Order 1999 (S.I. No. 94 of 1999).
	European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997).
	European Communities (Natural Habitats) (Amendment) Regulations, 1998 (S.I. 233 of 1998) and 2005 (S.I. 378 of 2005).
	S.I. No. 477 Of 2011 European Communities (Birds and Natural Habitats) Regulations 2011.
	European Communities (Quality of Salmonid Waters) Regulations, 1988. S.I. No. 293 of 1988.
EUROPEAN	EU Directive 79/409/EEC of 2nd April 1979 on the conservation of wild birds (the Birds Directive).
	EU Directive 92/43/EEC of 21st May 1992, on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive).
	EU Water Framework Directive (2000/60/EC) of 23 October 2000 establishing a framework for Community action in the field of water policy.

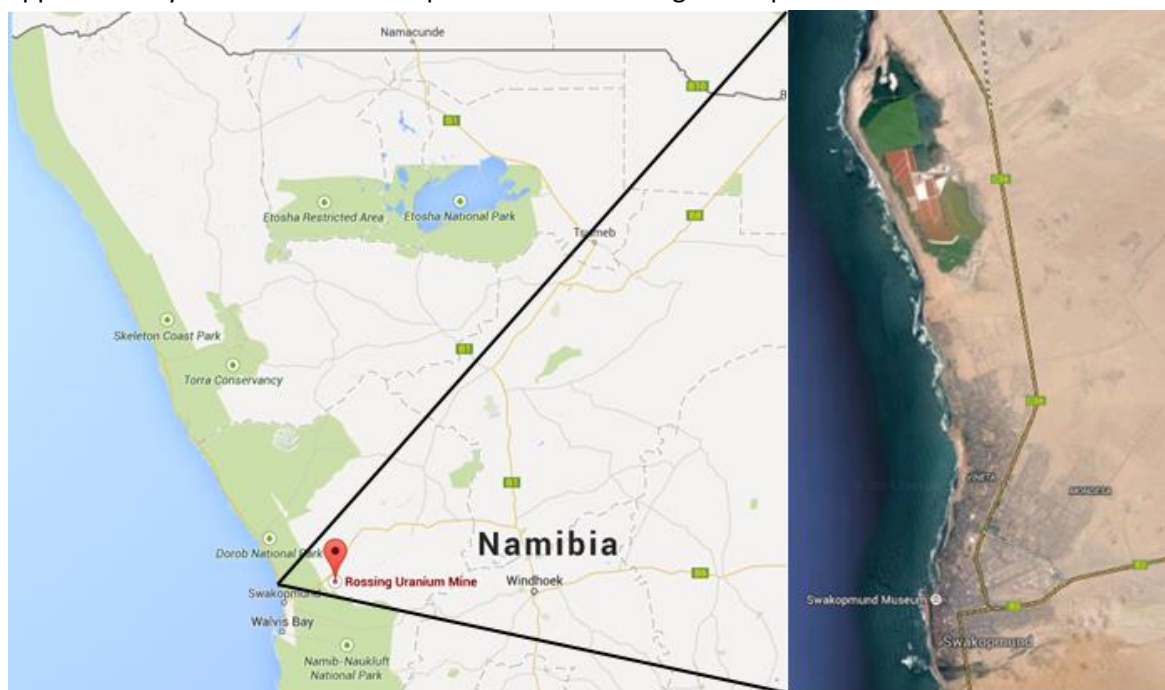
Sources of Information

<https://s08.static-shell.com/content/dam/shell-new/local/country/irl/downloads/pdf/corrib-development-biodiversity-action-plan-2014-2019.pdf>

Rössing Uranium Limited, Namibia

Background:

Rio Tinto Rössing Uranium Limited (Rössing Uranium) proposes to develop a new desalination plant, approximately 6km north of Swakopmund at the existing Swakopmund Salt Works.



The impact assessment has considered impacts (direct, cumulative, socio-economic and biophysical) associated with all stages of the project lifecycle: design, pre-construction, operation, decommissioning. Five options were considered, a base case, three alternatives after proposed mitigation, and the no-go alternative. The Social and Environmental Management Plan was designed to “guide responsible environmental management throughout the project lifecycle.”

Avoidance:

Type of Avoidance	When?	Action Taken
Spatial	Construction	Avoided locating the desalination plant within the IBA which is an important breeding area for Damara Tern.
	Construction	Linear features (such as pipelines, electrical cables and roads) will utilise the same (existing) servitudes wherever possible and will be routed to avoid the core breeding areas.
Temporal	Construction	Any construction activity located in or close to the Damara Tern breeding site will be scheduled to avoid the breeding months of October to April. This may apply to the upgrading of the intake channel, the construction of the intake/buffer pond and the intake pipeline from pond to plant.
	Operation	Regular planned (annual) maintenance activities will be scheduled outside the main Damara Tern breeding season, which is October to April.
Design	Construction	The plant and associated facilities (buffer pond; and pipelines, electrical cables and roads) will be designed and laid out to be compact and utilise the smallest possible footprint.

	Construction/ Operation	Construction vehicles will avoid the use of bright roof-mounted flashing lights (as is typical for construction sites); this becomes more critical during the breeding season.
--	----------------------------	--

Of the alternative options analysed, Option 1 was seen to be the optimal location. Option 1 has good connection to existing infrastructure and is within close proximity to the existing Salt Works ponds. The financial costs were also lower at this site than at Options 2 and 3. However, the southern part of the site was identified as core Damara Tern³ breeding area and therefore had to be avoided. This meant that Option 1b – the Northern/North-East part of the site – was the most preferred location for the desalination plant. The scoring systems used for each site and the final optimised design are shown below.

³ Endangered according to IUCN Red Data Book and therefore a species of conservation priority. Core breeding habitat of the Damara Tern was designated as a 'No-Go' area at all times.

Figure 31: RO Plant site Options

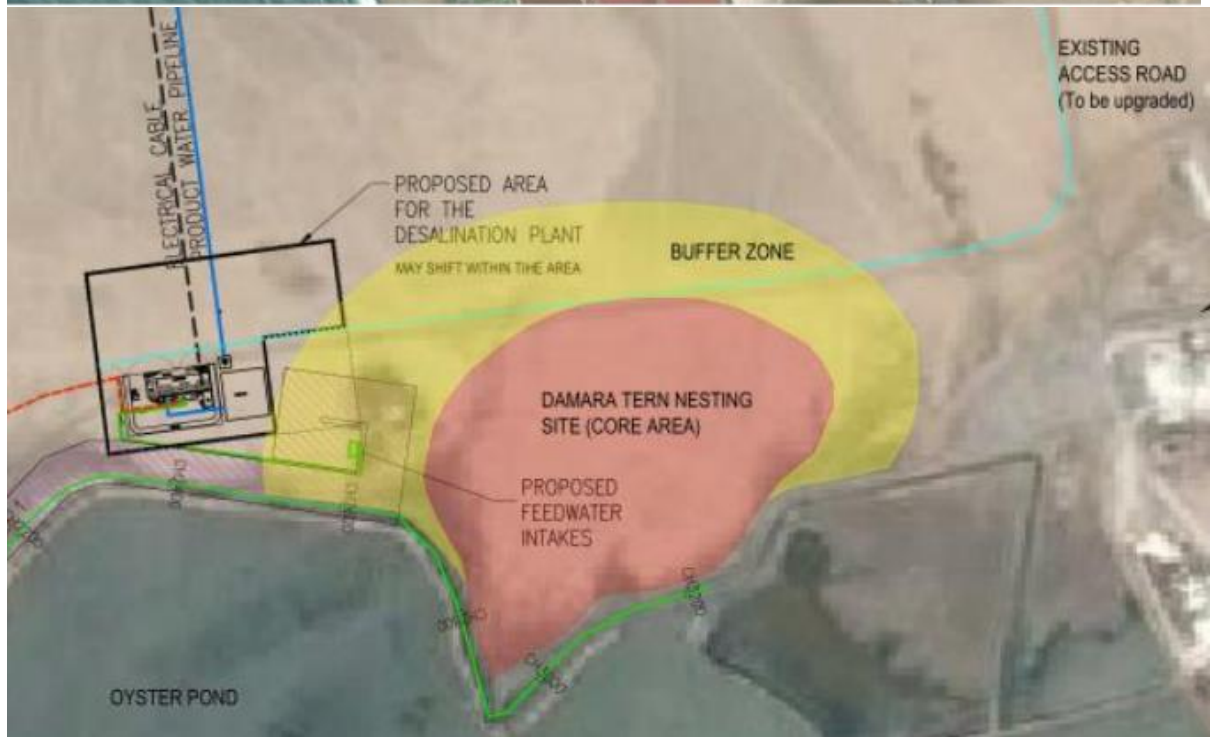


Table 16: Site option assesement results

EVALUATION SCORING (weighting)	OPTION 1	OPTION 2	OPTION 3
Technical (30%)	16	15	17
Financial (35%)	15	10	11
Operation and maintenance (0%)	0	0	0
Legal and Regulatory (0%)	0	0	0
health, safety, environment and community (35%)	15	16	15
WEIGHTED TOTALS	15.30	13.60	14.20

Motivation for carrying out avoidance actions:

The SEIA was undertaken in accordance with the following environmental impact regulations:

- Environmental Assessment Policy of 1995; and the Environmental Management Act (Act 7 of 2007)
- Environmental Impact Assessment (EIA) Regulations of Government Notices 28, 29, and 30 (February 2012)
- Environmental Clearance Certificate from the Department of Environmental Affairs at the Ministry of Environment and Tourism (MET:DEA)
- On completion of the SEIA process a final SEIA Report will be submitted to the MET:DEA, who are required to take an informed decision as to whether the project may proceed on social and environmental grounds.

The SEIA Process begins with the Go/No-GO decision based on feasibility investigations, conceptual designs and cost estimates. If the developer chooses to go ahead with a project an Environmental Clearance Certificate must be applied for. The Screening Phase requires that the SEIA application form is submitted to the MET, potential stakeholders and interested/affected parties are identified and social/environmental issues are considered. During the Scoping Phase Background Information Documents are disseminated, meetings are held with the public and focus groups, a draft scoping report is released for public consultation and then finalised for submission to the MET. In the SEIA phase, specialist studies are undertaken as per the ToR, the SEMP is drafted, released for consultation and finalised along with a final draft of the SEIA. These are then submitted to the MET in the Decision Phase and the decision is made as to whether to allow the project to proceed and where necessary, issue and Environmental Clearance Certificate. If the certificate is issued, the proponent must then undertake a detailed design for the project – bearing in mind environmental and social issues which were identified during the SEIA Phase.

Legislation and policy that must be considered includes:

- The constitution of the republic of Namibia (Act 1 of 1990 – articles 91c and 95I)
- Environment Management Act (Act 7 of 2007)
- Water Resources Management Act (Act 24 of 2004)
- National Heritage Act (Act 27 of 2004)
- Soil Conservation Act (Act 76 of 1969)
- National Policy on Coastal Management for Namibia

- Integrated Coastal Management Bill (2014)
- National Policy on Human Wildlife Conflict Management (2009)
- Proposed Climate Change strategy and action plan (2009)
- Namibia Vision 2030
- Coastal Seas
- Biodiversity Legislation (CBD, Ramsar, UNFCCC, Convention to Combat Desertification)

NGO Involvement?

Due to the proximity to an IBA and the general development within the region, BirdLife International has worked with the Chamber of Mines of Namibia to integrate wider stakeholder participation into the SEA process (BirdLife, 2008). This will include broadening the scope of Ministries involved beyond Mining and Energy to the Ministry of Environment and Tourism, Ministry of Finance, Department of Water Affairs, Namwater, and Nampower amongst others.

References:

BirdLife International (2008) Uranium Mining and IBAs in Namibia: a need for strategic environmental assessment. Presented as part of the BirdLife State of the world's birds website. Available from: <http://www.birdlife.org/datazone/sowb/casestudy/147>. Checked: 15/05/2015

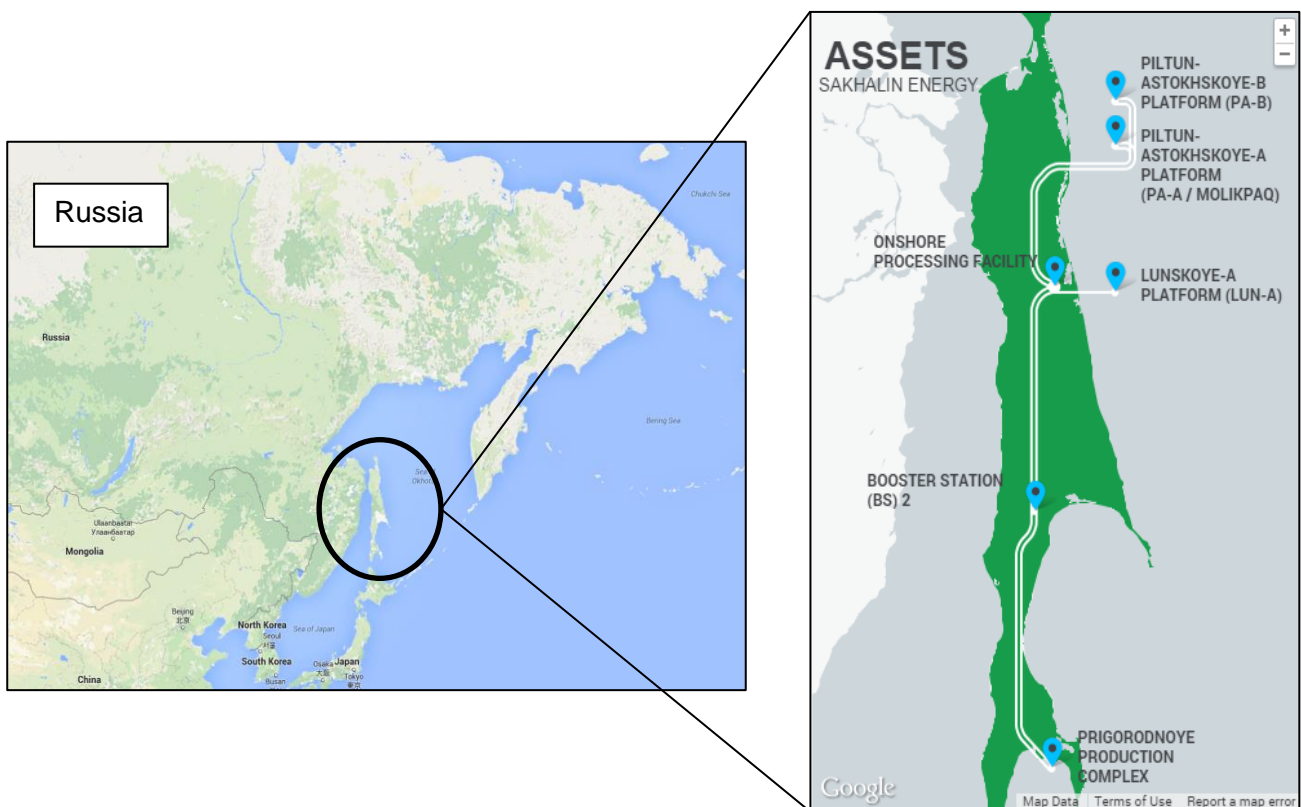
Rössing Uranium Desalination Plant SEIA – Executive Summary

Rössing Uranium Desalination Plant SEMP – Annexure E

Sakhalin Energy, Russia

Background:

Sakhalin Energy Investment Company Ltd. (Sakhalin Energy) is developing the Piltun-Astokhskoye oil field and the Lunskeye gas field off the north-eastern coast of Sakhalin. Its activities include production, transportation, processing, and marketing of oil and natural gas. The company operates under the Production Sharing Agreement (PSA)⁴ signed between Sakhalin Energy and the Russian Federation (represented by the RF Government and Sakhalin Oblast Administration) in June 1994. This Agreement was the first PSA in Russia. The project was originally financed through 2 Japanese banks (Bank of Japan and JBIC – Japan Bank for International Cooperation); Export Import Bank of the United States and the British Export Lending Bank. However it was ultimately the Japanese that followed through with funding. The Integrated Biodiversity Action Plan was developed in 2008. Sakhalin Energy is the first non-governmental company that has implemented a comprehensive system in this field.



⁴ A Production Sharing Agreement is a commercial contract between an investor and the state. According to a PSA, the state grants an investor an exclusive right to develop a mineral deposit/oil and gas field and an investor undertakes to develop such field/deposit using its own resources and at its own risk.

Avoidance

Type of avoidance	Action Taken
Spatial	Avoid key rivers for migratory Sakhalin taimen (a rare protected species of salmon)
	Re-routed offshore pipeline by 180km to avoid impacting the population of the Western Gray Whale in order to comply with IFC funding requirements
	Constructed over 1000 river crossings including those across vital salmon habitats
	The siting of facilities and routing of the onshore pipeline was undertaken to avoid areas of relatively intact habitat (e.g. areas of remaining dark coniferous forest).
Temporal	Avoid disrupting peak spawning period for migratory salmon
	Timed construction in important areas for Steller's sea-eagle by acknowledging their migratory status and thus avoiding sensitive periods for fledgling etc. For example, the Right of Way clearance and construction is scheduled in the winter months, outside the nesting season
	Establishment of a buffer zone around Steller's sea-eagle nests within which certain activities that may lead to disturbance (e.g. refuelling, storage, waste and materials stockpiling, accommodation camps, and water abstraction and discharge) should not take place. Buffer zone sizes are to be established in accordance with the characteristics of the surrounding landscape. Specific mitigation for each nest within the 2005 construction area will be developed over the 2004-2005 winter season and implemented before the breeding season commences in spring 2005
	During the nesting period, the construction was suspended, certain kinds of work were permitted only after nesting grounds had been mapped and confirmed.
Design	Utilised horizontal drilling to tunnel under the larger rivers to avoid impacting them.
	Sought to identify the nesting areas and the pipeline route and altered the pipeline using micro-routing to avoid eagle nest sites (managed to avoid 80-90% of nest sites).
	During the construction of the pipeline, the pipe-laying route was changed to bypass the breeding grounds of migratory species—the Sakhalin dunlin and the Aleutian tern forming colonies on the Chaivo spit.

Motivation

- Risk Management: Company committed to the equator principles which include adhering to the mitigation hierarchy and taking the precautionary approach.
- Compliance with Russian Federation Legislation and requirements for EIA.
- Sakhalin Energy needed to comply with the loan requirements of international banks, including the IFC performance standards.
- NGO Pressure/advice – WWF, IUCN

Monitoring

Sakhalin runs a number of environmental monitoring programmes, the data from which are used as a basis for environmental assessment, identification of adverse changes and development of mitigation measures. Ecological programmes are carried out in compliance with the Biodiversity Standard developed in the company.

Monitoring work for the gray whale population has been carried out, significantly increasing scientific understanding and helped design effective avoidance (and mitigation) strategies. While more research is needed to confirm potential long-term impacts of increased sound levels on the gray whales these programmes have provided research which informs risk management so that it is ALARP (As Low As is Reasonably Practicable). Since its implementation in 2003, the Marine Mammal Protection Plan has achieved success in that there have been no recorded collisions or near collisions with western gray whales, despite a substantial increase in the number of industrial vessels plying the waters near Sakhalin Island.

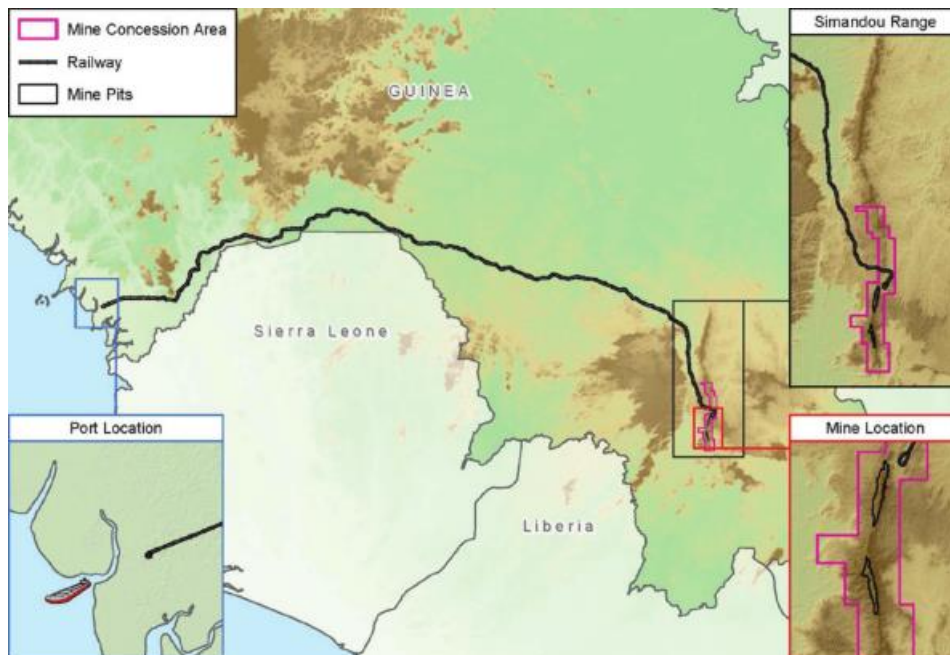
Challenges

Working with people with different mind-sets: Within Russia, compensation is largely based on monetary calculations. This money is then put money into a government controlled conservation fund. However, there needs to be better follow up of how that money is being allocated towards conservation efforts. It can also be hard to convey importance of avoidance/ mitigation work to people who hold little value or understanding of why they are doing it.

Simandou Project, Guinea

Background:

The Simandou Project is a 95 million tonnes per year proposed iron ore mining development, located in south-eastern Guinea in West Africa. The project will also consist of a new 670 km long railway running west to connect the mine to the coast and a new deepwater port in Forécariah Prefecture (Figure 1). Production is planned to commence in 2015, reaching full capacity from about 2020, and continuing for a lifetime of 40 years.



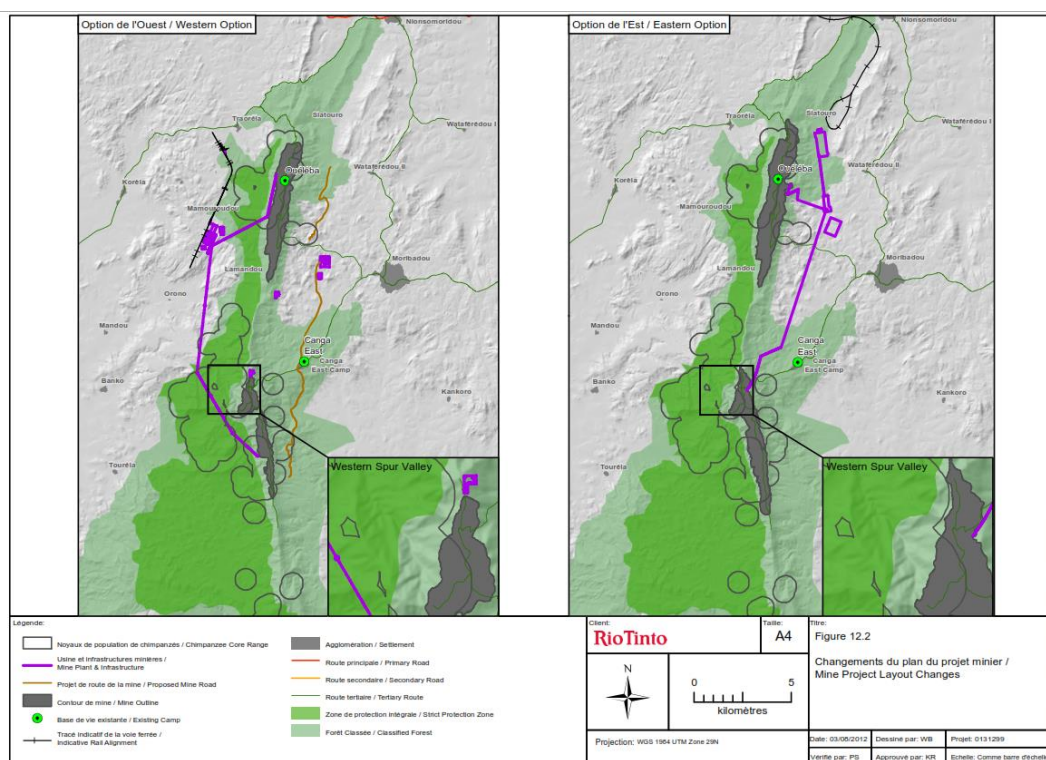
The following components of the project will result in direct impacts on biodiversity values:

- two mine pits: Ouéléba (approximately 700 ha area), and Pic de Fon (500 ha)
- two large waste emplacements (one near each mine pit) totalling approximately 500 ha, and a smaller one of 50 ha at Canga East
- haul and access roads totalling over 50 km, conveyors in excess of 15 km long, with crushers located at their pit ends
- processing plant covering 20 ha
- approximately 50 ha of workshops, offices and yards to maintain heavy mobile equipment
- permanent accommodation camp occupying approximately 50 ha.
- 670 km greenfield railway
- greenfield deepwater port and associated capital dredging

The total area of land for the mine and facilities will be approximately 2 000 ha (not including the proposed railway and port projects). A further 4 400 ha will be required for buffer zones and safety exclusion zones; however, the company expects much of this area will not be lost to biodiversity.

Avoidance:

Type of Avoidance	Action Taken
Spatial	All infrastructure and waste emplacements are located on the east side of the Simandou Range despite this placement incurring an increased cost. Avoidance of biodiversity impacts was reportedly the key driver for this decision. In the Pic de Fon Classified Forest, the great majority of intact forest (and populations of species of conservation concern such as West African chimpanzee) is located on the west side of the range. By placing infrastructure and waste emplacements on the east, the Project avoids a number of direct and indirect impacts, such as loss of substantial areas of lowland and submontane forest, fragmentation of populations of West African chimpanzee and other forest species, and contingent impacts (human disturbance, air pollution, dust). The east side of the Simandou range consists predominantly of more common and relatively degraded habitat types such as woodland and wooded grassland, that support considerably fewer species of conservation concern.
	A mining strategy has been developed that reduces the mine footprint by excluding part of the Pic de Fon orebody from mining activities; this avoids direct impacts on an area that provides important habitat for West African chimpanzee.
	All supporting development such as employee housing and worker camps are being developed away from the mine site to avoid in-migration issues where possible.



Finance:

The Project is being developed by Simfer, a Guinean registered company. The current Simandou partners in the project and in the mine's operating company, Simfer S.A., are the Government of Guinea (7.5%), Rio Tinto (46.57%), Aluminium Corporation of China ("Chinalco") (41.3%) and the International Finance Corporation ("IFC") (4.625%).

Motivation

Company Policy: Rio Tinto has a policy (launched in 2004) committing them to achieve a Net Positive Impact (NPI) through conservation and sustainable environmental management. For a project such as the Simandou Project, this means introducing measures to avoid, reduce and manage the Project's direct impacts from the earliest conceptual design stage, right through construction, operation and closure.

Rio Tinto also supports several international voluntary agreements, including:

- Extractive Industries Transparency Initiative
- Global Sullivan Principles of Social Responsibility
- International Chamber of Commerce Charter for Sustainable Development
- International Council on Mining and Metals Sustainable Development Framework
- Voluntary Principles on Human Rights

Funding: As the IFC is a Project partner, the Project will be developed in line with the IFC's Policy on Social and Environmental Sustainability and its Social and Environmental Performance Standards. In order to comply with IFC standards the impact assessment uses the results of baseline studies undertaken over several years which included a comprehensive suite of technical studies on the various social and environmental aspects of the Project.

Guinean Regulatory Framework: Regulations on Environmental Impact Assessments (EIA) in Guinea is defined by *l'ordonnance N°045/PRG/87 du 28 Mai 1987, modifiée par l'ordonnance N°022/PRG/89 du 10 Mars 1989, portant Code de la protection et de la mise en valeur de l'environnement*. In addition, *décret présidentiel 199/PRG/SGG/89 du 8 novembre 1989 codifiant les études d'impact sur l'environnement* defines projects subject to an EIA and its approval by the ministry in charge of environment. Lastly, *arrêté ministériel 990/MME/SGG/90, du 31 Mars 1990, définissant le contenu, la méthodologie et la procédure de l'étude d'impact sur l'environnement, pris en application du décret présidentiel 199/PRG/SGG/89*, determines the content, methodology, and procedure applicable to undertaking an EIA.

In line with international best practice, the Simandou project has chosen to broaden the scope of the EIA to include social aspects, hence the acronym SEIA. As required under the Environment Code, the SEIA will be submitted to the Delegate Minister for the Environment, Water and Forests (Ministère de l'environnement, eaux et forêts or MDEEF) in order to apply for a certificate of Environmental Compliance for the Project. The Bureau Guinéen des Etudes et Evaluations Environnementales (BGEEE), an entity of the MDEEF, will commission a public enquiry through which the public will be entitled to express their comments on the Project and on the SEIA. The SEIA for the main Project was initiated in April 2011 and a Draft Report has now been presented to government and published for comment.

Challenges

Presenting the business case: people from different backgrounds may find it challenging to understand the link between biodiversity values and NPP/business risk/shareholder value. For example engineers in the project team may be cost driven and promote solutions which are economically efficient. Assigning a monetary value to environmental aspects may assist in conveying a biodiversity feature's importance rather than solely attempting to understand the intrinsic value of biodiversity.

Impacts precede data surveys: The current impacts of Simandou Project on the Pic de Fon CF were difficult to determine primarily because exploration activities for the project precede the 2007 / 2008 baseline survey by more than 10 years. The study of current and assumed past use of the CF by chimpanzees has assumed, however, that the road network across the ridge and the construction of the Ouéléba and Canga camps caused habitat loss and fragmentation of chimpanzee habitat, displacing chimpanzees in the process. Overall the chimpanzee specialist studies assume that both habitat loss and a range of indirect impacts have already adversely impacted the species distribution and possibly on the total chimpanzee abundance in the Pic de Fon CF. Data from the baseline survey including the presence of old nests, indicate the range of chimpanzees once included areas east of the ridge.

The biodiversity challenges associated with this Project are wide ranging, complex, and many areas of specialist expertise were and continue to be required. The management of these issues will attract international attention from a range interested stakeholders and will influence the social and environmental reputation of Rio Tinto, IFC, Chalco and Government of Guinea. The Project has regularly engaged Rio Tinto's biodiversity partners on important matters and seeks input in various ways ranging from providing advice on strategy, reviewing documentation, participating in a biodiversity values assessment and conducting field surveys. In addition the Project has engaged technical experts on specific issues, for example an Independent Review Panel was established in 2010 to review specialist reports and provide advice on issues relating to chimpanzees. The Independent Review Panel continues to play an important role in this regard.

Yemen Liquified Natural Gas (YLNG) Project, Yemen

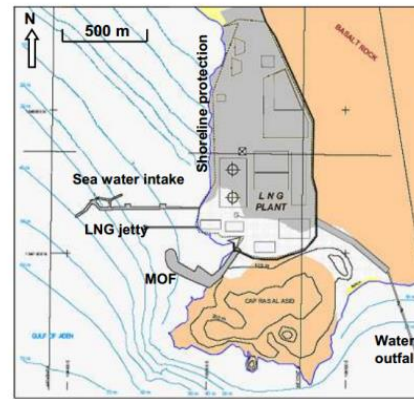
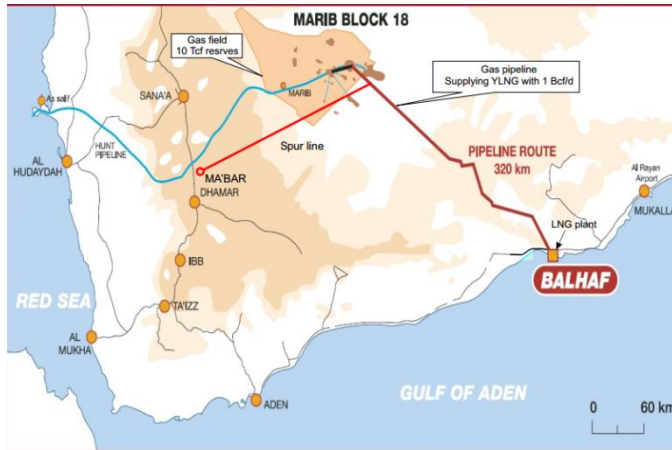


Figure 2 Balhaf LNG plant.

Avoidance:

Type of Avoidance	When	Action Taken
Spatial	Pre-construction	Survey of six alternative sites, and preliminary comparative studies, to select a combination of a LNG plant location and pipeline route to transport the gas, which would optimize the economics of the project while minimizing its environmental and social impacts. Balhaf was selected from a shortlist of sites as it proved to be the best technical and environmental option with minimal dredging and no breakwater requirement, and provided the shortest pipeline route which had the least impact on people. Balhaf therefore represented the optimum environmental and socio-economic option when considering both the plant location and pipeline route. The pipeline route has been selected to avoid zones with the potential for soil erosion including the access and the exit of the plateau. Sensitive areas (Wadi Jirdan, Wadi Salmoon and Wadi Mahyid) were also avoided, and most of the pipeline route is in desert regions with little vegetation.
Design and spatial	Pre-construction	Following a baseline survey (2005) YLNG redesigned the Materials Offloading Facility (MOF). The final decision involved 1) placing the MOF in between two coral banks as this allowed for dredging in coarser material, reducing turbidity; and 2) using a piled bridge solution, rather than a rock-dumped solution, to maintain free flow of ocean currents reduce the overall footprint on the sea bed. In addition, YLNG re-designed the shoreline works to the north of Balhaf cape to eliminate works at the shoreline and move it back onto land, avoiding the potential for physical damage to corals. Furthermore, the water outfall was designed to avoid coral area by burying the pipe in

		the sea bed in a gap between the corals, thus avoiding the risk of coral morbidity or mortality due to any increase in seawater temperature.
--	--	--

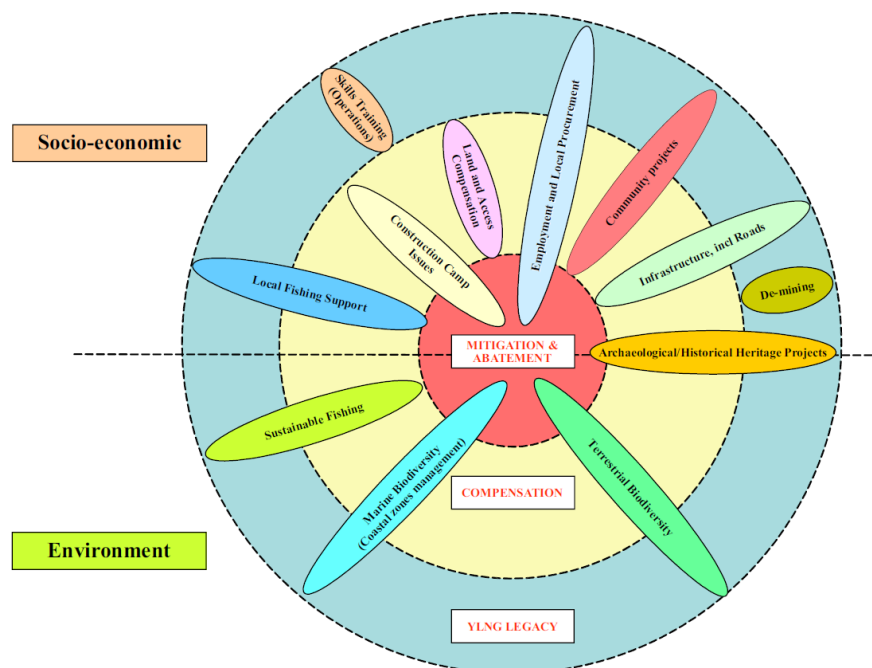
Additional measures

Yemen LNG implemented the use of silt curtains at the commencement of marine construction works. These utilise geotextile technology to form curtains which are deployed to protect the corals from water borne suspended sediments. Yemen LNG continues to use silt curtains in order to provide a barrier “filter” between marine construction works which may generate suspended particles in the water, and the corals which would be adversely affected by sediment deposited on them. Silt curtains are effective in reducing the total flux of sediment and in avoiding the free transport of the majority of stirred grains from inside the dredging area to the external environment. Coral translocation was also carried out to avoid the loss of corals in areas where infrastructural development had to occur. YLNG, in consultation with marine consultants and specialists developed new methodologies, with ultimately high success rates.

When and by Whom?

- Up until mid-2008, biodiversity projects have been evaluated and selected according to the Community and Environment Investment Plan (CEIP) evaluation procedure.
- Yemen LNG intends to collaborate with the International Union for the Conservation of Nature (IUCN) including consultation with the scientific panel, within the context of Yemen LNG’s Long Term Sustainable Development Strategy (LTSDS) which sets out a 5 year plan, part of which centres on biodiversity.
- This process will cover relevant stakeholders, including government officials, NGO representatives and academic members and officials from Universities and research centres, in addition to the scientific review panel.

Drivers



Corporate Policy:

It is the Yemen LNG Company goal to achieve internationally recognized environmental performance in biodiversity conservation during all phases of design, construction, operation and decommissioning of the plant. This can be seen in their Environmental and Social Principles (in the diagram above): “Yemen LNG’s environmental and social philosophy is founded on human development and the protection of biodiversity. Yemen LNG adopts nine principles which are fundamental to our business and to which all persons working on Yemen LNG activities will adhere.” These include:

- Assessing and enhancing the positive impact of our activities, while preventing and mitigating their negative impact on populations, wildlife and the environment for the duration of our operations and beyond
- Following recognized regional and international standards in all of our environmental and social activities – as currently laid out in World Bank / IFC guidance.

The Yemen LNG Sustainable Development and Environmental Strategy identifies 3 levels of action, the first two of which correlate to the mitigation hierarchy as they require companies to first minimise and mitigate environmental impacts to ensure as low an residual impact as possible (preferably none); following that to offset or compensate impacts according to international standards (World Bank/IFC). The third level is to ensure a positive, and long-term, legacy in Yemen. These levels of action are implemented in accordance with international standards, in consultation with shareholders and third party advisors (including high profile NGOs such as the IUCN) who ensure compliance.

Yemen LNG has aspired to be a best in class performer in CSR. This commenced with the publication of a World Bank compliant Environmental and Social Impact Assessment (ESIA) in February 2006. This provided all stakeholders in the project (eg the Yemeni authorities such as the Ministry of Water & Environment MWE and the Environmental Protection Authority EPA who have joint responsibility for these matters) and the Lending Institutions with a full description of the environmental and socio-economic impacts of the Yemen LNG project and the mitigation measures. The ESIA addressed the key environmental and social issues resulting from the Yemen LNG project as required by Yemeni regulations (Environment Protection Law no. 26 of 1995) and it was prepared in accordance with World Bank/International Finance Corporation (IFC) operational policy guidelines. It included a large amount of additional data collected by Yemen LNG through the commissioning of various studies and surveys on demographics, biodiversity, fishing activities etc.

The ESIA study, and the subsequent Environmental and Social Management Plans (ESMP) which implemented the necessary mitigation measures, were compiled with input from local stakeholders, local communities, local organisations, as well as the regional and national authorities who have, through individual meetings or through public consultation forums, provided their valuable input into the project. Yemen LNG has also sought to meet international standards with respect to consultation and disclosure involving several interested stakeholders inside and outside Yemen, ranging from local to international NGOs, Yemeni authorities both at ministerial and local levels and locally affected communities. This approach is fully explained in Yemen LNG’s Public Consultation and Disclosure Plan (PCDP).

Legislation:

In the Republic of Yemen, there is no specific national law or requirement relating to biodiversity that mandate developments to design and implement a biodiversity action plan (BAP). However, on February 21st, 1996 the Yemen Government ratified the International Convention on Biological Diversity which was launched at the Earth Summit conference in 1992, in addition to other international biodiversity related conventions ratified recently. In doing so, the Yemeni Government is committed to significantly reduce the rate of biodiversity loss and to prepare and implement a national biodiversity action strategy and plan (NBSAP). This involvement has been formalized in the draft NBSAP, published in January 2005. The draft plan identifies, on the basis of a detailed situation analysis of biodiversity in Yemen, “strategic goals and priority objectives to preserve and use in a sustainable way the irreplaceable biodiversity and natural resources of Yemen”. Also ratified CITES and CMS amongst others.

Financial:

On 13th November, 2012, Yemen LNG Company Ltd. received formal confirmation from its Lenders Agent, The Bank of Tokyo-Mitsubishi UFJ, Ltd, that the Company has achieved unconditional Lenders’ Completion. This confirms that all facilities necessary for the Yemen LNG Project have been constructed and are operating in accordance with the strict parameters laid down by the Project loan documents.

Tools

- In order to validate the Yemen LNG marine biodiversity protection strategy, the company undertook environmental monitoring using both national and international bodies, to check on the condition of corals and marine water quality. . This approach was overseen by the relevant Yemeni authorities.

Challenges

- Finding an optimal route for the pipeline which had to go through difficult geographical features such as mountains and narrow valleys and areas with a rapid population growth
- Site selected at Balhaf displaced local fishermen – measures had to be put in place to offset this economic displacement.
- NGO’s were initially against the project – had to show that it was of benefit to the country and that there would be a balance between industry and environmental protection through avoidance and mitigation measures.
- There was also the challenge of working in highly sensitive areas - Yemen LNG have attempted to avoid impacts as described above but very challenging to work in such a biodiverse and sensitive area. Company representatives believe that excellent results have been achieved to date – built LNG plant but also conserved an important area of marine biodiversity.
- Using techniques which are not commonly used presented a challenge to the project – e.g. translocating corals to a safer area as impacts were unavoidable – had to trial different methods of attachment (cement and epoxy resin for example).

Sources of information

- Francis Vorhies (Earthmind) and Ibrahim Al-Thary (Yemen LNG)
- Publicly available documents and literature

West Heath Quarry, UK

Background

This case study concerns a proposal by CEMEX UK Operations Ltd for an easterly extension of the West Heath Quarry, which lies in the South Downs National Park. The majority of the application site is allocated for this purpose in the adopted West Sussex Minerals Local Plan. The extended quarry would enable CEMEX to extract 565,000 tonnes of soft sand from an area of approximately 7 hectares over a period of four to five years. CEMEX UK, in partnership with the RSPB, have committed to achieving Net Positive Impact on biodiversity. While this is largely carried out through onsite restoration (usually phased according to extraction schedules), there are still opportunities to avoid and minimise their activities at earlier project stages.



Although the site is not part of any legal ecological designation, it is situated within the non-statutory 30 hectare West Heath Common SNCI (Site of Nature Conservation Importance). Although much of the existing planting is species poor, the site is important as it contains a surviving fragment of Wealden Greensand heathland. Four reptile types were identified within the site (slow worm, common lizard, adder and grass snake) although no protected species or evidence of such protected or sensitive species or their habitats including Great Crested Newts (GCN), bats, dormice or badgers were found to be present.

Although the proposed development would result in the loss of approximately seven hectares of the SNCI, much of the existing planting and vegetation in is poor health, particularly the northern area, due to a lack of long-term management. The application proposes a number of ecological mitigation and enhancement measures including: compliance with protected species legislation; monitoring of the existing heathland; protection and relocation of the four reptile types during mineral extraction; creation of new hibernacula (reptile habitats); a biodiversity management and monitoring plan; and most notably the provision of improved habitats through landscaping additions

Documentation

This proposed project is subject to a planning application and constitutes Schedule 2 development under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. An Environmental Impact Assessment (EIA) as well as an Environmental Statement (ES) therefore needs to be submitted explaining any significant environmental effects arising from the development and the mitigation measures proposed.

National policy requires an assessment of the availability of alternative options as well as an assessment of the need for the development and the impact on the environment. Within West Sussex, the future demand for this resource is likely to be met with supply from within, or very close to, the SDNP area.

The ecological work, completed in 2013, was performed by AEcol and included defining the baseline conditions within the site, the reptile monitoring set-up, provision of reptile refuges, the translocation of reptiles from within Phase 1 of the Extension Site into Phase 1 of the Receptor Site and the production of a detailed report of actions taken and baseline conditions with evidence-based recommendations for further actions.

Avoidance:

Type of Avoidance	Actions undertaken
Spatial	Protection and survival of existing biodiversity at the site in accordance with the Heathland Regeneration Partnership (involving the South Downs National Park Authority)
	Prior to operation, a scheme developed detailing the measures to protect all retained trees during construction in accordance BS5837:2005 'Trees in relation to construction', shall be submitted to the County Planning Authority for written approval.
	All the UK's common native reptile species are protected against intentional killing under the <i>Wildlife & Countryside Act 1981</i> (& as amended) and are listed as Priority Species within the UK Biodiversity Action Plan and must be avoided. The main objective with regard to reptiles at this site therefore is that slow-worms, common lizards, grass snakes and adders are retained at favourable status ⁵ in their natural range. To avoid risk, refuges were created and a system of trapping was used to relocate individuals. Trapping will continue until five successive circuits have been performed with no captures. At this point trapping will cease, the refuges will be removed, and the soil-strip will commence immediately. This will ensure re-colonisation of the cleared phase does not occur prior to the area being worked.
	Provision of an up-to-date assessment of the status of roosting bats within the Extension Site in order to fully mitigate and understand the impacts of the quarry extension on the brown long-eared bats.

⁵ Status is defined as favourable when: a. Population dynamics data on the species concerned indicate it is maintaining itself on a long-term basis as a viable component of its natural habitats; b. The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and c. There is, or will probably continue to be a sufficiently large habitat to maintain its populations on a long-term basis.

Motivation:

Due to the known existence of a bat-roost within the Extension Site, bat monitoring should be undertaken. As have already been set out, the mechanisms which safeguard bat-roosts comprise the *Wildlife & Countryside Act 1981 (& as amended)* and *The Conservation of Habitats and Species Regulations 2010*, which implements the provisions of EC Directive 92/43 (“The Habitats Directive”). Brown long-eared bats and their roosts are protected under the *Wildlife & Countryside Act 1981 (& as amended)* and *The Conservation of Habitats and Species Regulations 2010*, which make it a criminal offence to: intentionally kill, injure or take a brown long-eared bat; intentionally or recklessly damage or destroy, or obstruct access to, any structure or place used by a brown long-eared bat for shelter or protection; intentionally or recklessly disturb a brown long-eared bat when it is occupying a structure or place it uses for shelter or protection; Brown long-eared bats are also listed as a Priority Species within the UK Biodiversity Action Plan

A key part of the delivery of the UK BAP is action through the local action plans. The Sussex Biodiversity Partnership covers both of the counties of East and West Sussex and the unitary authority of Brighton and Hove as well as a number of other stakeholders. The partnership seeks to conserve and protect species and habitats through the delivery of the Sussex Biodiversity Action Plan. As part of this strategy West Sussex County Council published in March 2004 the ‘West Sussex Minerals Sites a Biodiversity Action Plan’.

Mineral Policy Statements (MPSs) set out the Governments national planning policies for mineral planning in England. These complement but do not replace or overrule, other national planning policies, and should be read in conjunction with other relevant statements of national planning policy. MPS1 sets out the Governments key overarching policies and principles which apply to all minerals development.

“Avoidance was necessary as we wouldn't have otherwise got planning permission. Credibility and reputation are also hugely important as well” (pers.comm. Regional Manager, CEMEX).

Challenges

At West Heath it was not possible to translocate all individuals of the species at risk. The project therefore aimed to move sufficient individuals into the new habitat to ensure viable populations. However, defining a viable population is in itself a challenge. Furthermore, when avoiding an area, it is important to account for indirect impacts and to not alter hydrological integrity. For example at Forest Hill, there was potential for the weirs to affect drainage at the site. At a northern site blasting of a nearby active quarry had the potential to fissure the rock and impact an area of avoided bog (pers.comm. Mark Kelly).

Sources of information

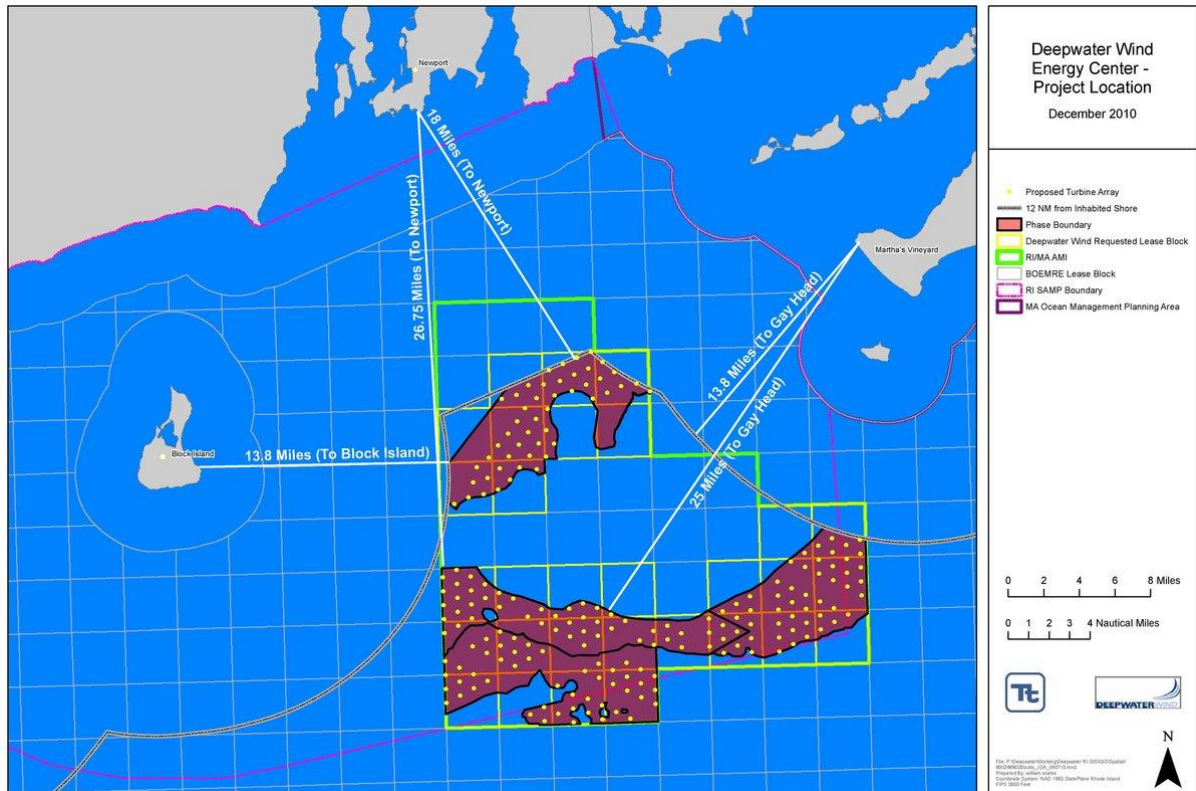
Site Biodiversity Action Plan

Discussions with Mark Kelly – CEMEX Regional Director

Block Island Wind Farm, USA

Background:

Deepwater Wind Block Island, LLC, proposes to develop the Block Island Wind Farm (BIWF), a 30-megawatt (MW) offshore wind farm located approximately 4.8 km southeast of Block Island, Rhode Island. The BIWF will consist of five, 6-MW wind turbine generators (WTGs), a submarine cable interconnecting the WTGs, and a 34.5-kilovolt (kV) transmission cable. In connection with the BIWF, the Block Island Transmission System (BITS), a 34.5-kV submarine transmission cable will run approximately 35.1 km from Block Island to Rhode Island mainland. The Project will also include construction of a new substation on Block Island at the site of an existing power generation facility.



http://graphics8.nytimes.com/images/2010/12/09/science/09green_dwec2/09green_dwec2-custom1.jpg

Deepwater Wind has attempted to design a project that will follow the avoid, minimise, mitigate framework consistent with the mitigation hierarchy. Site selection and analysis of alternatives was carried out over a four-year period. The proposed Project represents four years of site-selection and consideration of alternative sites and operating parameters. The company engages in detailed site analysis and pre-application consultations and stakeholder engagements.

Avoidance:

Type of Avoidance	Action Taken
Spatial	Onshore facilities primarily located along existing rights-of way and developed areas.
	Cable routes and WTGs have been sited to avoid impacts on potentially sensitive benthic communities including eelgrass beds and hard bottom habitats/substrates known to be used by some finfish species and marine species.
	Deepwater Wind has committed to conducting pre- and post-construction surveys to provide a site-specific assessment of the local lobster community. They have also committed to conducting a 5-year trawl survey (2 years pre-construction and 3 years during operation) to assess the local finfish community. Data will help the company to avoid (and minimise) impacts where possible by assisting in the design of effective avoidance strategies.
	National Oceanic and Atmospheric Administration (NOAA) guidelines for marine mammal strike avoidance will be followed by all vessels.
	Monitoring and mitigation measures followed during construction as directed by NOAA Fisheries permits for pile driving. This may include: shut-down procedures and marine mammal monitoring protocols to avoid impacts.
	Potential to impact on avian and bat species was a key criteria during selection of final location for WTG Array (areas with high potential were avoided).
Design	Horizontal Directional Drilling will help to avoid disturbance to shoreland areas and tidal wetlands.

Motivation

The National Environmental Policy Act (NEPA) requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. To meet NEPA requirements federal agencies prepare an Environmental Impact Statement (EIS).

Sources of information

<http://www.epa.gov/compliance/nepa/>

Lewis Wind farm proposal, UK – Avoided Development



Background:

In April 2008, Scottish Ministers announced their decision to reject the proposal by Lewis Wind Power to construct a large-scale wind farm on the internationally protected peatlands on the Isle of Lewis in the Outer Hebrides. This decision by the Scottish Government was based on recognition of the impacts that this renewable energy development would have on an area of important natural heritage. The original proposal, launched in 2001, was to build 234 turbines, 105 km of roads, 141 pylons, five rock quarries and a range of other associated works such as cabling and sub-stations. The vast proportion of the proposal was to be built on the Lewis Peatlands Special Protection Area (SPA) designated and protected under European law. The proposal was for one of the biggest wind farms in Europe on one of the most sensitive peatland sites, which has some of the highest densities of breeding birds in the UK.

Avoidance:

Type of Avoidance	Action Taken
Spatial	Project was not allowed to go ahead as the impacts of development on the SPA and the species/habitats, for which it was designated, were seen to be too severe to mitigate.

Motivation:

SPA's fall under Article 4 of the EC Birds Directive, and are designated as a result of rare and vulnerable birds, and for regularly occurring migrant species. The Lewis peatlands SPA was designated for 5 annex 1 birds: *Gavia stellata* (red throated diver), *Gavia artica* (black throated diver), *Aquila chrysaetos* (golden eagle), *Falco columbarius* (merlin) and *Pluvialis apricaria* (golden plover). At the time this site supported 9% and 8% of the British breeding pairs of *G.stellata* and *G. artica*. The SPA also qualified under Article 4.2 for the migrant species *Calidris alpina* (Dunlin), holding 37% of the British and 31% of global population, and *Tringa nebularia* (greenshank), holding

10% of British population. The Lewis Peatlands SAC itself covers 58,984.23ha. As a result it was not possible for the developers to redesign their proposal to avoid damaging impacts on either species or habitats.

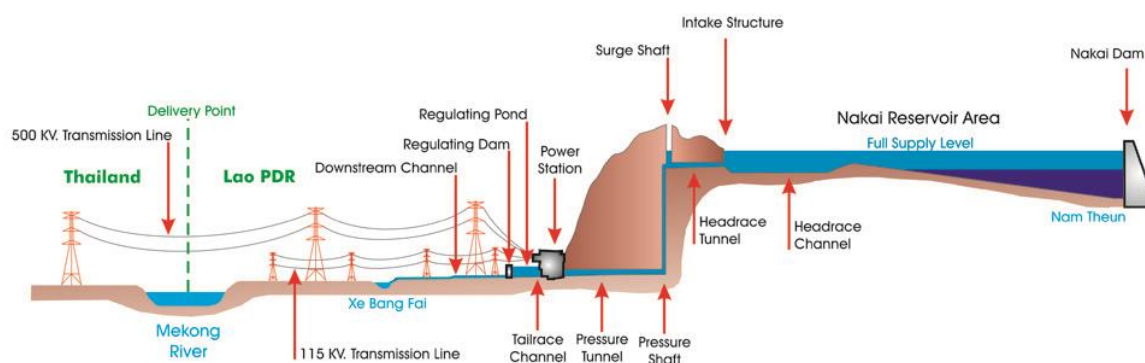
A revised application for 181 turbines was submitted in 2006. The Scottish Government considered and rejected the application, concluding that the impacts were so severe that they would affect the integrity of the designated site and that because there were many alternative solutions to meet renewable electricity generation objectives (which were considered by Ministers to be the primary public needs addressed by the proposal), the proposal should not go ahead. The decision letter did note that the peatland habitats affected could not be re-created elsewhere in the Western Isles or in Scotland in a location or manner likely to be suitable for the large populations of rare and vulnerable species involved and therefore had to be avoided.

Since then subsequent development proposals have been granted permission and RSPB Scotland and Scottish Natural Heritage (SNH) have withdrawn objections to plans for a major wind farm on the Western Isles. This is based on the developers' decision to reduce the number of turbines for the Stornoway Wind Farm from 42 to 36. Lewis Wind Power is a new joint venture involving Amec, EDF Energy and the Stornoway Trust.

Nam Theun II Hydropower Project, Laos

Background:

This Hydropower Project will dam the Nam Theun, a tributary of the Mekong, generating 1,070 MW of electricity to supply the Electricity Generating Authority of Thailand (EGAT) (93%) and EDL (7%). The Project is predicted to have a lifecycle of 25 years, generating approximately US \$1.9 billion for the Government of Laos (GOL). This will make it the one of the most significant sources of foreign income for the GOL. It is hoped that this development will also help the GOL to alleviate poverty as part of their development framework.



Technical specifications of the dam - the Project's location is very favourable for a large hydroelectric power facility. The natural geography of the Nakai Plateau and the surrounding area is unique in that it allows a hydroelectric project with a significant head of water without a corresponding requirement for a high dam.

It is estimated that approximately 1,170 km² of land (primarily on the Nakai Plateau) will be lost due to direct impacts such as land clearance for construction works, reservoir inundation and general degradation and ecosystem disturbance. Further indirect impacts will be seen as a result of immigration of workers to the area and infrastructure development allowing for better access into the forest and the Nakai-Nam Theun National Protected Area (NNT NPA), which could increase risk of hunting in the area. However, as seen below, environmental considerations were a small fraction of the budgetary considerations compared to social measures or watershed management.

	Budget Commitment (in million US\$) ^b		
	Construction & commissioning (up to c.2010) ^c	Commercial Operation	TOTAL ^{b&c}
Social Measures <i>Includes resettlement and compensation measures, livelihood programs and institutional capacity building on Nakai Plateau, Project Lands and Xe Bang Fai</i>	33.8	11.4 ^d + 7.5 ^f	52.8
Environmental Measures <i>Includes fish studies, water quality monitoring, wildlife programs, public education and institutional strengthening</i>	3	0.8 ^d	3.8
Watershed Management (SEMPOP)	6.5	25 ^e	31.5
TOTAL	43.3	~ 44.7^{d&e}	~ 88.1^{c&d}

Avoidance

Type of Avoidance	Action Taken
Spatial	The location of the camp site to provide labour on the NT2 dam was revised. The dam site is within a protected area that was established to protect the biodiversity in the area surrounding the gorge of the Nam Theun below the Nakai Plateau, and to allow movements of elephants and other wildlife off the plateau and between the plateau and the limestone NBCA (protected area). A sealed-off and closely controlled camp adjacent to the dam site was therefore chosen to reduce the threat to biodiversity and prevent obstruction to the movement of elephants and other wildlife.

Motivation

Species and habitat of importance:

The Nakai plateau in southern Laos, part of the Northern Annamite Rain Forest Ecoregion, is a highly biodiverse area containing 38 mammal, 17 bird and 10 reptile species currently classified as globally threatened according to IUCN's Red List of Threatened Animals. These include tigers, Asian elephants, clouded leopards and gibbons. The NNT NPA also holds 19 mammal and bird species which are considered near or strict endemic, e.g. langurs, crested gibbons, Annamite muntjac, Annamite striped rabbit, Edward's pheasant and the orange-necked partridge. The area is also home to indigenous peoples.

Pressure from external and internal bodies

External:

International Agencies	Government Agencies
Lenders' Engineer	Environmental Management Unit (EMU)
Panel of Environmental and Social Expert	Resettlement Management Unit (RMU)
International Advisory Group	Resettlement Committee
NTPC Board and Director Representative Team	District Working Groups
Dam Safety Review Panel	Department of Energy Promotion and Development
International Financial Institutions (including the World Bank, ADB, EIB, AFD)	Village Forestry Association
	Ministry of Agriculture and Forestry
	GOL engineer

Internal:

The Head Construction Contractor is required to ensure impacts from construction are within the acceptable limits as defined by the Environmental Monitoring and Management Plan. Assessments are also made regarding social impacts and the progress of environmental programmes.

Challenges:

Data deficiency is a key challenge when working in this region as there is a lack of information surrounding the exact movements of the elephants in the Corridor, the Limestone NBCA, and nearby Nakai Plateau areas.

The increase in individuals living in the area (workers for the project) will also be a challenge in terms of ensuring that it does not have impacts on wildlife from increased hunting and trade. This will require further upgrading of the WMPA barrier near the Route 8B junction to the dam site along with monitoring of hunting and trapping activities in the adjacent villages of Phonkeo.

Further Information

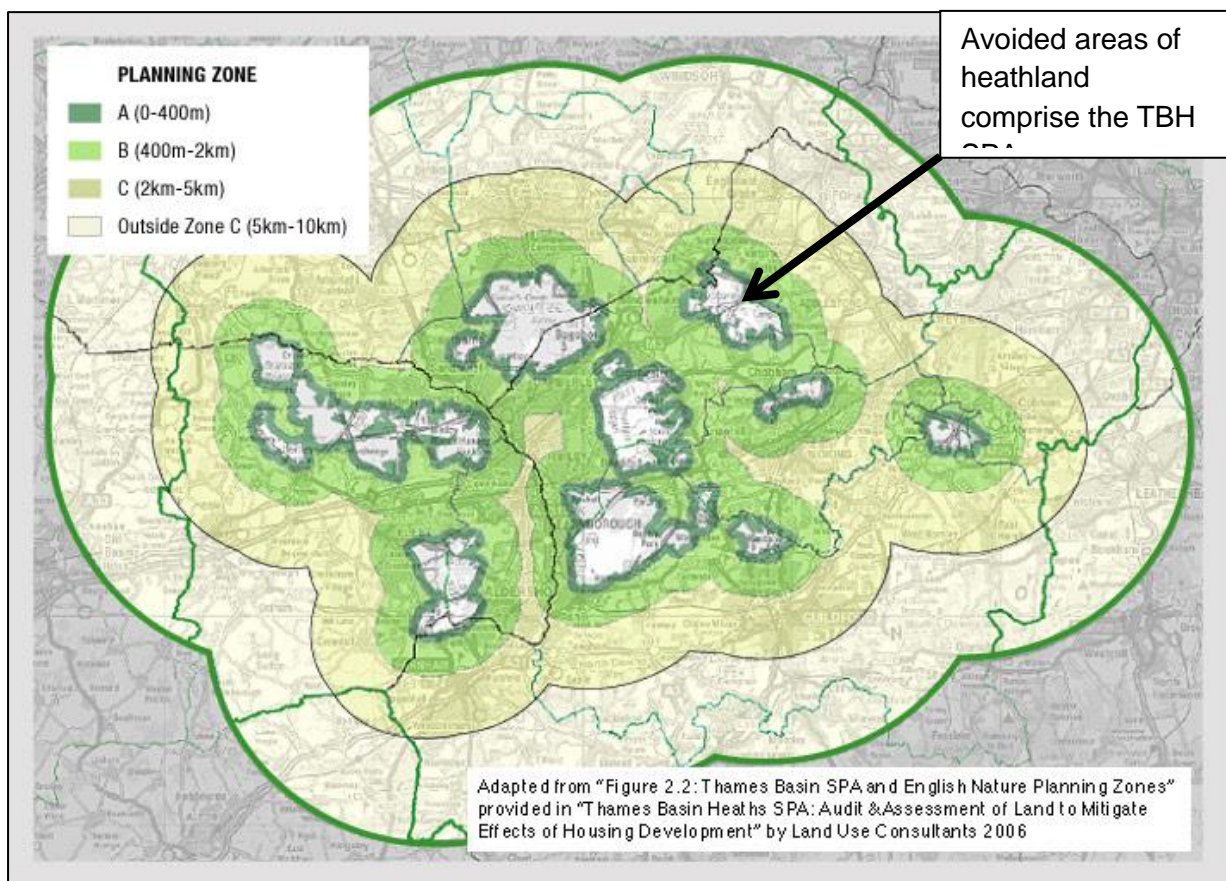
There is still a lot of uncertainty amongst NGOs (e.g. WWF) and others as to the environmental implications of this project and the extent to which they have been avoided. Avoidance has so far been focused on the location of the workers camp and has yet to address the impacts of the development itself.

Thames Basin Heath Development Project, UK

Background

Due to the large number of local authorities involved and the cumulative nature of the impacts (a result of many individual housing applications) a co-ordinated approach to avoidance measures has been necessary and the Thames Basin Heaths Joint Strategic Partnership Board (JSPB) has been set up to provide the vehicle for joint working between local authorities and other organisations responsible for protection of the Thames Basin Heaths SPA. The JSPB includes Member representation for each affected Local Authority together with a number of stakeholders.

The Thames Basin Heaths SPA Avoidance Strategy 2010-2015 applies to all planning applications submitted on and after 1 September 2010. In order to avoid harm to the SPA, planning applications for residential development are expected to financially contribute towards works to improve existing green spaces within the Borough. A total number of 4,437 dwellings will be expected to contribute to strategic SANGs between 2006 and 2026.



http://sea.unu.edu/course/index.html%3Fpage_id=63.html

Avoidance:

Type of Avoidance	Action Taken
Spatial	Identification of Suitable Alternative Natural Green Spaces (SANGS).
	A schedule of improvements to the identified sites with a detailed timetable of works and costs. This enables developers to demonstrate how they will avoid harm to the SPA by linking their developments to site specific improvement works. A financial contribution will then be sought from the developer, through the completion of a section 106 agreement, to ensure improvements are undertaken.
	It will be open to a developer to provide alternative open space directly rather than make a financial contribution. This open space will be assessed against Natural England's standards.
	The avoidance measures should be applied within a 'Zone of Influence' - defined as the area from 400m from the perimeter of the SPA to 5km from the perimeter of the SPA.(8) The identification of SANGS should seek to avoid sites of high nature conservation value which are likely to be damaged by increased visitor numbers.
	The Council's Open Space, Sport and Recreation Audit of 2005 helped to provide a basis for the potential natural and semi-natural sites which could be used as alternatives to the Thames Basin Heaths for recreational purposes. The sites, which are not considered to be of highest quality and value in the audit, have the potential for improvement and therefore financial contributions for work on such sites can be accepted as avoidance measures.

Motivation:

- Cumulative impacts: Any net increase in residential dwellings within 5km of the SPA is likely to have a significant effect either alone or in combination with others falling within the 5km zone. Consequently, every proposal for net additional dwellings must make provision to avoid and/or mitigate the effect. If developments contribute towards the measures set out in this SPD they can avoid the effects of the development proposal and a project-level Appropriate Assessment is not required. The option remains for developers to undertake a Habitats Regulations screening assessment and where necessary a full appropriate assessment to demonstrate that a proposal will not adversely affect the integrity of the SPA.
- Listed species: Annex 1 birds for which SPA was designated
- Legislation: EU Birds and Habitats Directives – cannot degrade or impact on the SPA

NGO involvement:

- The Joint Strategic Partnership Board (made up of relevant local authorities, Natural England, Homebuilders Federation, RSPB, Open Spaces Society and Wildlife Trusts) has produced a Delivery Framework. Each affected authority has adopted the framework which details the introduction of SPA access management measures to inform visitors about the impacts their visits are having on rare birds, to encourage changes in behaviour.
- This Delivery Framework sets out the Thames Basin Heaths Joint Strategic Partnership Board's (JSPB) recommendations on measures to enable the delivery of dwellings in the vicinity of the

SPA - without having a significant effect on the SPA as a whole. It focuses on avoiding the impact of recreation and urbanisation on the SPA habitat and interest features.

- Local authorities should refer to this Delivery Framework in the preparation of local or joint mini-plans, development plan documents (DPDs) and/or supplementary planning documents (SPDs). They should also ensure that appropriate references are made to the provision of SPA-related impact avoidance measures in their Local Development Framework (LDF) and supporting implementation documents in line with policy within the South East Plan. Adopting the framework approach into SPD/DPD does not negate the need to undertake a Habitats Regulations Assessment on that document. In developing planning documents which relate to the SPA, local authorities should satisfy themselves as to whether the document requires a Habitats Regulations Assessment or should be subject to Strategic Environmental Assessment. This Delivery Framework should not be used directly for development control purposes.

Monitoring and review

- Monitoring of the success of avoidance/mitigation measures should be carried out by local authorities, NE and existing landowners and managers, and funded by ensuring that the charge levied on developer contributions includes an allowance for the cost of this work. The charge collected in relation to monitoring should be pooled for strategic allocation. This monitoring should address: i) Habitat condition and bird numbers (an existing NE responsibility); ii) The provision of SANG and delivery of dwellings; iii) Access Management; iv) Visitor Surveys. It should be coordinated strategically, in line with a Monitoring Strategy agreed by the JSPB. Partners, including NE, may undertake additional monitoring and research in relation to the SPA and in order to improve the evidence base.

Pasto-Mocoa Road, Colombia

Background:

The Pasto-Mocoa road project (a 46km stretch of road) is part of a much larger scheme to improve infrastructure connections across the entire continent. In 1986, plans were presented by the Instituto Nacional de Vías to the Ministry of the Environment for approval. However, these were rejected on the grounds that such an important and vulnerable area needed a stronger environmental assessment and environmental safeguards. In 2008 the plans were brought back into discussion with a stronger emphasis on forest protection, grounded in rigorous research and analysis of the area (WWF, 2011).

The standard environmental impact assessment was funded by the government to assess the direct impacts of road construction, but the Inter-American Development Bank (IDB), which would be providing the loan for the road, funded two further studies: one to develop a management plan for the forest reserve; the other a regional strategic environmental assessment to look more widely at regional and indirect impacts of the proposed road (both cumulative and synergetic).

In 2008 the two environmental assessments were finalised and combined with the forest management plan to create the Sustainable, Integrated Social and Environmental Management Plan (PMASIS). The plan has funding of US\$12 million, which is 6% of the total road loan from the IDB. This is significantly more than equivalent IIRSA projects, which allocate as little as 1% of funding to environmental and social management plans. Its implementation will be managed by a variety of government institutions including, in large part, the local environmental authority Corpoamazonia.

This is the only example of an infrastructure project in Colombia where more than the legal requirement for impact assessment has been commissioned. In part this was a result of the implementation of the IDB's new environmental safeguards policies, but it was also a measured response from the IDB to widespread criticism (including from WWF) of weak environmental assessment in projects commissioned under the Initiative for the Integration of Regional Infrastructure in South America (IIRSA)⁶ and discussions with key stakeholders based on the available scientific information. "The most interesting lessons learned come from the process" (pers.comm. S.Rincon, WWF Colombia).

"It [PMASIS] has been an important opportunity for the IDB to learn how to support infrastructure development that is the least harmful to the environment, and for WWF to build constructive relationships with civil society, government and multilateral institutions. Most important, the communities in the affected area have the opportunity to deal with some of their biggest problems, which underlie the threats to the forest". (WWF, 2011)

⁶Colombia joined the IIRSA in 2000 alongside the other governments of Bolivia, Guyana, Brazil, Ecuador, Chile, Peru, Venezuela, Uruguay, Suriname, Argentina and Paraguay. IIRSA is a plan to link South American development Projects. It is being supported by the Corporación Andina de Fomento (CAF), the Inter-American Development Bank (IDB) and the River Plate Basin Financial Development Fund (Fonplata) who together form the Technical Coordination Committee. This committee will provide funding, advice and technical support. The Pasto-Mocoa Road (Amazon hub) is an example of a project which is being supported by the IIRSA. (IADB, 2015)

Impacts:

Among the potential direct impacts of the new road are deforestation of high conservation value areas (including habitat loss for species such as spectacled bear and tapir), impacts on watercourses, and social impacts. The indirect impacts, which could potentially be even more significant, could include: immigration and new settlements along the road, displacement of local communities, especially those without land titles, concentration of land property among a few outsiders, establishment of unsustainable productive systems and impacts on local food security.

Avoidance

Type of Avoidance	Action Taken
Spatial	<p>Direct Impacts: Alternatives analysis and environmental impact assessment of the selected alternative. PMASIS includes one strategic line to manage the construction of the road. Of the 4 alternatives considered, alternative 4 was selected as it was the shortest length, lowest costs, and lowest deforestation rate and passed by the least number of rivers/streams. First step to try and avoid biggest quantity of impacts in the area.</p> <p>PMASIS sets out a range of actions to ensure that species (especially those which are endemic and vulnerable), ecosystems and cultures are protected. The forest management plan also recognises the need to avoid deforestation through the control and monitoring of natural resource use.</p> <p>Avoid Indirect impacts: PMASIS, the other four strategic lines:</p> <ul style="list-style-type: none">-Land planning-Control and surveillance-Protected areas-Social control
Design	Avoid cutting trees by using special bridges to avoid impacts.

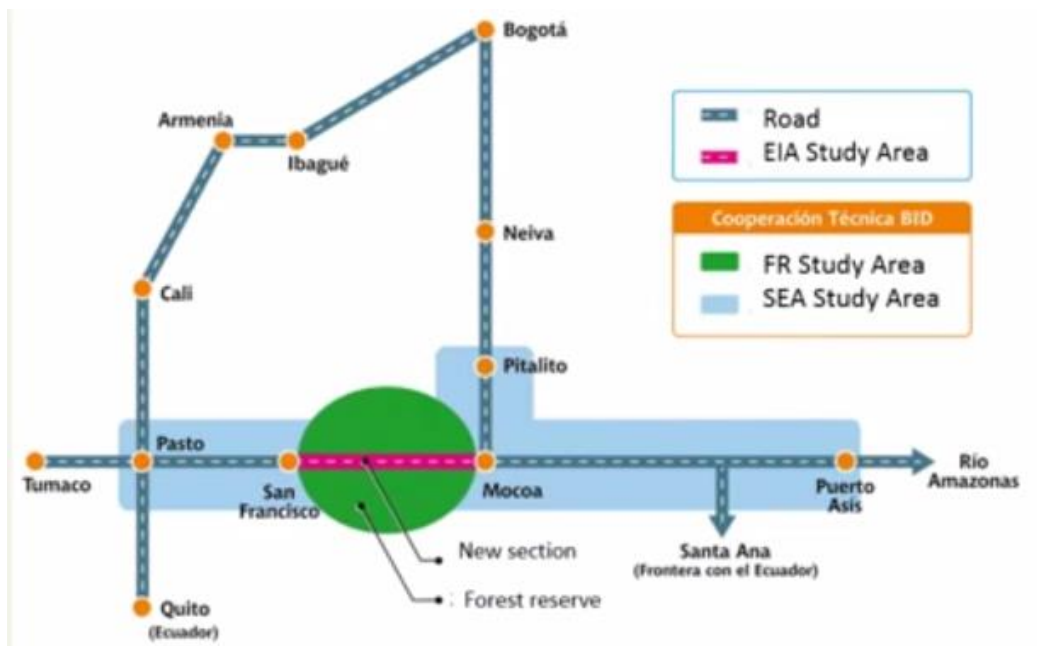


Illustration of new road development and the section which was included in the SEA and Forest Reserve study. WWF Colombia and Fundación Equilibrio (2011). Más allá de una vía: Construcción de la variante San Francisco - Mocoa

Motivation

The national government is investing in this vision, wishing to open up the country to economic investment and activity as the route to employment and better standards of living for Colombians. This development vision is based on the assumption that freer movement of people and goods will lead to improvements in standards of living in general. The same arguments are made to support infrastructure development at local, national and regional levels.

Monitoring

Conservation and sustainable development. Includes: (i) research and monitoring of the natural resources of the expanded reserve; the purchase of land and restoration of vegetation in degraded areas as compensation for removal of the right of way; and the rescue, relocation, and reintroduction of native species; and (ii) local governance strengthening projects, including support for: (a) the competent environmental authority for administration of the Reserve; (b) environmental supervision and strengthening of citizen participation; (c) promotion of alternative financing sources for managing the reserve, such as payment for environmental services; and (d) an independent technical advisory committee to supervise the PMASIS.

References:

<http://www.iadb.org/en/topics/regional-integration/iirsa/the-idb-a-strategic-partner-of-the-iirsa,1414.html>

British American Tobacco, global

Background:

In 2012, tobacco was known to be growing in at least 124 countries, occupying approximately 4.3 million hectares of agricultural land: equivalent to 7.5 million tonnes of tobacco leaf production (Eriksen et al. 2012). In countries such as Zambia, production of tobacco increased by 690% between 2000 and 2009 (Eriksen et al. 2012).

British American Tobacco (BAT) has made a commitment to minimising their impact on biodiversity. In 2001 the BAT Biodiversity Partnership was established between BAT, the Earthwatch Institute, Fauna & Flora International and the Tropical Biology Association. Through the Partnership, BAT has been able to work towards mainstreaming biodiversity values into their business, while also supporting global conservation initiatives (BAT, 2015).

Avoidance Measures:

“Under the British American Tobacco business principle of Good Corporate Conduct, we aim to minimise our impact on biodiversity and the wider environment. Part of this commitment means avoiding, minimising or mitigating our impacts on biodiversity and linked ecosystem services, or where this is not appropriate or most beneficial, offsetting those impacts at a regional or national level”
(British American Tobacco, Biodiversity Statement).

Figure 1: Examples of where avoidance has been demonstrated in BAT operations.

Country	Type of avoidance	Action Taken
Bangladesh	Spatial - avoidance of deforestation by not sourcing from farmers identified to be growing within the forest reserve	Deregister BATB tobacco farmers who grow tobacco in the reserve forestry area
Uganda	Spatial – avoidance of impacts to riverine and forest habitat in line with national regulations.	Raise awareness of farmers on national land-use regulations, and promote best practices particularly regarding avoidance of riverine natural vegetation cover Produce detailed local maps of land use and forest cover in BATU areas of operation and use them to improve the understanding of risks and opportunities of current activities and inform planning for the future in terms of what areas should be avoided where possible. Also used to engage local communities in the management of forests by working with local NGOs to improve their awareness of, and compliance with forest

		regulations.
Venezuela	Spatial – avoidance of introduction of invasive species which may degrade habitat quality	Avoid the use of potentially invasive non-native trees for restoration or hedgerow planting by using fast-growing native varieties.

BROA:

British American Tobacco Biodiversity Partnership has developed the Business Risk, Opportunities and Assessment tool (BROA), a field-based tool, for companies with agricultural supply chains. It assesses risks to biodiversity and ecosystem services, dependencies and opportunities in the landscapes where they operate. The tool has been recognised by the UN Food and Agriculture Organisation and the World Business Council for Sustainable Development as an approach that is comprehensive enough to be used by any organisation operating in an agricultural landscape. In 2012 BROA was made publicly available to encourage it to be applied outside the tobacco sector.

The BROA tool provides a method to: identify the impacts and dependencies of business operations on biodiversity in agricultural landscapes; assess and prioritise the risks and opportunities arising from those impacts and dependencies; and produce action and monitoring plans to address the identified risks and opportunities. Internally, the tool has been used to monitor environmental performance across the BAT network. By the end of 2013, 29 sites had been certified to the ISO 14001 environmental standard.

“Working with BAT to develop and implement BROA across their growing regions to avoid and mitigate environmental impacts is a significant success for our partnership” (pers.comm. Steven Lowe, FFI)

In terms of decision making, the Group Operations Director has overall responsibility for environmental management and the Management Board is responsible for BAT’s Environment Policy. The Policy applies to all of BAT’s activities including the supply chain and requires companies to: Understand environmental impacts of their operations and put plans in place to mitigate these impacts; Ensure adequate reporting on environmental performance and that these reports are acted upon in terms of management and monitoring; Factor environmental aspects into product design considerations where feasible; and share best practices with suppliers and business partners in order to learn from shared experiences and work with all stakeholders to reduce impacts across the whole supply chain and product lifecycle (BAT, 2015).

The BROA tool can support avoidance strategies by aiding the identification of biodiversity and ecosystem values that may be impacted by the project and the identification of potential avoidance zones to maintain those values. There is however a need for this to form part of a wider approach that follows the mitigation hierarchy and aims to achieve realistic biodiversity targets.

References:

Eriksen M, Mackay J, Ross H. *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation; 2012.

http://www.tobaccoatlas.org/industry/growing_tobacco/land/

http://3pk43x313ggr4cy0lh3tctjh.wpengine.netdna-cdn.com/wp-content/uploads/2015/03/TA5_2015_WEB.pdf
<http://www.bat.com/environmentalmanagement>

Asia Pacific Resources International Holdings Limited (APRIL)

Background:

Asia Pacific Resources International Limited (APRIL) is a leading fibre, pulp and paper manufacturer and one of the world's largest producers of bleached hardwood kraft (BHK) pulp. In 2002 the company established a pulpwood sourcing and tracking policy creating a chain-of-custody system that ensures all products entering its mills come from legal and verified sources. They are guided by the definition of Sustainable Forest Management (SFM) laid down by the Food and Agriculture Organisation of the United Nations (FAO): "Achieving a balance between society's increasing demands for forest products and benefits, and the preservation of critical biodiversity – essential for the survival of forests, and the prosperity of forest dependent communities".

Avoidance actions

Type of Avoidance	Action
Spatial	As part of compliance with legal requirements and voluntary commitments, HCV assessments are required prior to government approval. Adherence to HCV requirements has led to over 200,000 ha being protected in Riau Province (20% of land managed by APRIL and its supply partners). APRIL used the HCV Indonesia Toolkit to delineate and protect conservation zones and indigenous tree species areas within concession areas. Results from HCV assessments are incorporated into land-use planning in order to maintain the areas set-aside as HCV. It is also APRIL's company policy to avoid sourcing fibre from government designated conservation zones or from legally protected tree species.
	Micro-delineation of land-use within concession areas carried out by an expert third party in order to identify areas of natural forest which should be safe-guarded. This is in order to meet Indonesia's legal land-use requirements and will be based on specific legal criteria such as designated sites or species as well as hydrology and soil sensitivity. At the concession level, land use management plans also set requirements for monitoring of IUCN Red List species and other notable species such as the Sumatran tiger, Asian elephant, Storm's stork and giant river turtle.
	APRIL also commit to avoiding impacts to peatland habitat through adopting a "total landscape" approach. This involves ensuring that there are no impacts to central peat domes and major riparian corridors maintain connected. This may include designing concessions to protect central peat domes located outside the concessional boundaries, as well as designating set-asides within and outside concessions.

Motivations:

Legal Compliance:

- APRIL is guided by the Indonesian Government's forestry regulations that stipulate the general allocation of land to be used for fibre, community livelihood, natural tree plantations, **conservation forest** and infrastructure.
- Indonesia's Ministry of Forestry provides broad guidance on the allocation of land use within industrial forest plantation licenses that includes:
 - Industrial tree plantation +/- 70%

- Infrastructure +/- 5%
 - Community livelihood plantation +/- 5%
 - **Conservation** +/- 10%
 - Natural tree plantation +/- 10%.
- In Indonesia, adoption of sustainable forest management (SFM) is a mandatory obligation for forest operators, as stipulated by the Law of the Republic of Indonesia No.41/1999 on Forestry. The aim of the law is to promote SFM by allowing forestry stakeholders to assess the progress a company is making toward achieving certification.

International Certification:

- APRIL's operations in Riau Province, Indonesia are certified under ISO 14001 (Environment Management Systems)
- Since 2010, APRIL's production facilities have been certified under Programme for the Endorsement of Forest Certification (PEFC) Chain of Custody standards.
- It is also recognised under Bureau Veritas' standards for Origins and Legality of Timber (OLB) and Hong Kong Green Label Scheme (HKGLS).

National Certification

- Since 2006, APRIL has been certified for Sustainable Plantation Forest Management (SPFM) under the Indonesian Ecolabel Institute's (LEI) standards. In late 2011, APRIL successfully re-certified under SPFM-LEI for the period of 2011-2016.
- APRIL is certified under Sustainable Production Forest Management and Timber Legality Verification (PHPL/SVLK) standards from the Indonesian Ministry of Forestry. PHPL/SVLK certification was jointly developed and will be endorsed by the European Union (EU) through the Voluntary Partnership Agreement (VPA) programme between EU and the Government of Indonesia. This was developed in preparation for the EU's Forest Law Enforcement, Governance and Trade (FLEGT) licensing requirements which came into force in March 2013.

Business Benefits:

"APRIL derives clear business benefits from an SFM approach, which represents a form of risk management. Factors such as disaffected local communities, corruption, damaging farming practices, fire and haze, and unstable economics can potentially disrupt our operations. By applying SFM principles, we can minimize the business risk related to these factors. We believe our success in obtaining both plantation concession licenses and a major eco-restoration license reflects our SFM approach." (APRIL Sustainability Report, 2012)

Monitoring

APRIL audits its own concessions to ensure actual conservation areas correspond with areas identified as conservation in land management plans. Where discrepancies occur an investigation will occur to rectify mistakes. Compliance with certification schemes also means that reviews will have been carried out by third-party individuals. In addition, government-appointed Monitoring, Reporting and Verification (MRV) teams have verified adherence to land-use plans and confirmed designated conservation areas are protected.

Challenges:

Despite these positive actions stated in their management plans and company commitments there have been concerns over whether these have actually been realised on the ground. NGOs such as Greenpeace and WWF have claimed that APRIL is in fact continuing on a business-as-usual path and that they are still converting natural forest for their operations.

The avoidance strategies adopted here, and indeed by a number of agriculture and forestry based companies, do not necessarily follow the mitigation hierarchy with set targets for overall reduction in impacts.

Sources of Information

APRIL online documentation

<http://www.aprilasia.com/images/sustainability/policy/sfm-policy.pdf>

<http://www.aprilasia.com/en/sustainability/conservation>

<http://wwf.panda.org/?238111/NGOs-say-APRILs-policy-anniversary-without-real-gain>

Kingfisher plc. Net Positive for Timber

Background:

Kingfisher is an international retailer which works in home improvement. Timber is a crucial aspect as approximately 40% of their products contain paper or wood. Kingfisher has recognised the need to prevent continued forest decline, and as a result they are looking to have a NPI on biodiversity (Kingfisher, 2014).

Kingfisher have launched forest projects in the UK and Spain that will provide sustainable sources of wood through improved management techniques and also encourage increased stakeholder engagement. Kingfisher also works with businesses, NGOs, and governments to address the drivers of deforestation. Partners include: The Cambridge Natural Capital Leaders Platform; FSC; PEFC; The Prince's Charities International Sustainability Unit; Rainforest Alliance; The Sustainable Tropical Timber Coalition; and WWF's Global Forest and Trade Network (Kingfisher, 2014). IKEA, Kingfisher and Tetrapak have also formed a new collaboration to measure the positive statistics which can be extracted from FSC forests including: biodiversity, labour laws, social issues, and land conflict. This could help to inform and guide policies as to which areas should be avoided based on sound analysis of a range of social and environmental factors.

Actions:

Type of Avoidance	Action Taken
Spatial	Responsible sourcing – Avoiding the use of uncertified timber sources through the use of responsibly sourced timber which is independently audited by recognised certification schemes (e.g. FSC, PEFC). Under FSC criteria certain areas of high biodiversity value must be avoided (e.g. HCV, Intact Forest Landscapes (IFLs)). Kingfisher has currently reached 87% (in 2014) but working towards 100% of timber being certified. They are also attempting to ensure that timber and paper used in packaging, catalogues, stores, offices and construction projects is also responsibly sourced.

Motivations:

Within Europe, forestry conservation is becoming a high priority on the political agenda with Government ministers at the Forest Europe Oslo Conference (2011) calling for “a legally binding agreement to protect the environmental, economic and social functions of forests”.

Challenges:

The mitigation hierarchy for retail is challenging as companies are often 5 or 6 points removed from the supply chain and rely on verification proxies that determine the MH is in place. Unlike the extractives which have a direct influence, most retail does not (apart from IKEA who have direct control over approximately 15% of their supply chain). In the narrative of NPI, Kingfisher agrees with the MH as they use proxies within the sustainability framework. In their procurement policy, provenance and legality are starting points as if you can prove the origin and legality of product, and legal framework has a link then it is possible to argue that the mitigation hierarchy has been followed but it can be tenuous and hard to prove. Hence, standards such as FSC and PEFC can be used to adopt a precautionary approach. This also relates to the fact that many may argue that good

silviculture was in place before the concept of the mitigation hierarchy and the various voluntary standards, and that these have only been formalised with the need for third party verification to gain the credibility required for them to be implemented.

Furthermore, there is less pressure within the forestry sector to follow the mitigation hierarchy, as where extractives will always have a negative impact and therefore will need offsetting just to achieve a NNL; if done well forestry should have a positive impact. Related to this, progress towards creating markets for responsibly sourced timber and paper may be difficult (Kingfisher, 2014)

A significant challenge within this sector is the lack of ownership of resources. Retailers may be recognising the need to adopt better environmental practices in order to maintain their asset lines, the fact that they do not own the resources upon which they rely can be difficult. There may also be a lack of capacity on the ground in terms of individuals who are qualified to act as auditors for retail suppliers.

Sources of Information

Jamie Lawrence - Kingfisher

Kingfisher NPI report (2014):

http://www.kingfisher.com/netpositive/files/reports/cr_report_2014/2014_Net_Positive_Report.pdf