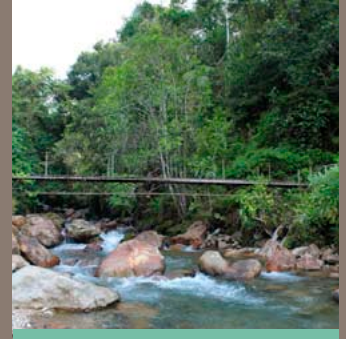




Frieda River Project  
Sustainability Report 2008



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## About Xstrata Plc

Xstrata is a global diversified mining group, listed on the London and Swiss Stock Exchanges, with its headquarters in Zug, Switzerland. Xstrata's businesses maintain a meaningful position in seven major international commodity markets: copper, coking coal, thermal coal, ferrochrome, nickel, vanadium and zinc, with a growing platinum group metals business, additional exposures to gold, cobalt, lead and silver, recycling facilities and a suite of global technology products, many of which are industry leaders. The Group's operations and projects span 19 countries.

## About Xstrata Copper

Headquartered in Brisbane, Xstrata Copper is one of the commodity business units within the major global diversified mining group Xstrata plc. Its operations and projects span eight countries: Australia, Argentina, Chile, Peru, Canada, the USA, the Philippines and Papua New Guinea. Its operations are administered by five separate divisions, based close to the mining operations, namely the North Queensland, Minera Alumbrera, North Chile, Southern Peru and Canada divisions. It also has a recycling business (Xstrata Recycling) with plants in the United States and offices in Canada and Asia.

Xstrata Copper is the fourth largest global copper producer with annual attributable production capacity of over one million tonnes.

# Frieda River Project

The Frieda River Project is located on the border of Sandaun and East Sepik provinces in Papua New Guinea (PNG), about 200 kilometres from the coast and 70 kilometres from the navigable Sepik River. It is a joint venture between Xstrata Frieda River Limited (75.1%), Highlands Frieda Ltd (16.7%) and OMRD Frieda Co Ltd (8.2%). During 2008 the Frieda River Project employed more than 180 employees and contractors.



# Executive General Manager's message

In 2008, Xstrata Copper continued to advance its portfolio of world class copper projects in strict adherence to its firm commitment to the principles of sustainable development.



It gives me great pleasure to introduce the Sustainability Reports for 2008 for five of Xstrata Copper's development projects. Once again these reports detail our performance in key areas such as health and safety, environmental management and social responsibility and community development. By producing and distributing these reports on an annual basis, we hope to convey Xstrata Copper's continued and deep commitment to the principles of sustainable development.

In 2008 Xstrata Copper's portfolio of projects included the Tampakan project in the Philippines, El Morro in Chile, El Pachón in Argentina and Frieda River in Papua New Guinea as well as the Energía Austral hydroelectric project in southern Chile. I am pleased to report that these projects are leaders among global development projects for their dedication to and public reporting of sustainability performance.

Xstrata Copper understands that to gain a social license to operate we need to demonstrate continuous improvements to the safety and health of all our workers, responsible environmental management and that our presence provides tangible benefits to the communities in our area of influence.

These objectives underpin all our project development work and planning and are perceived as a fundamental pillar of our business success.

## Our health and safety

Early in 2008 these projects experienced an unexpected increase in the number of safety related incidents. This performance was in stark contrast to the strong safety performance experienced in 2007. Urgent management action was taken to refocus attention on Xstrata Copper's strategic objective of achieving healthy and injury-free workplaces and, as a result, there were notable improvements to our safety performance in the second half of the year. For the full year, our total recordable injury frequency rate (TRIFR) was 4.2 recorded injuries per million hours of work, unchanged from 2007<sup>1</sup>. The lost time injury frequency rate (LTIFR) registered 1.7 in 2008, an increase from 0.7 the previous year.

A major achievement in the area of health and safety was the recognition awarded by the Chilean Safety Association to the El Morro project for completing two years with no lost-time injuries. This is a remarkable performance considering El Morro's extreme weather conditions and high altitude which present added challenges to health and safety performance. In addition the Tampakan project achieved one million exposure hours free of lost time injury incidents, another impressive achievement.

## Our environment

Our projects are located in a wide range of remote environments, from the rain forests of Papua New Guinea, home to Frieda River, to the arid heights of the Chilean Andes, where the El Morro project is located.

By partnering with specialized consulting companies, recognized academic institutions and local communities, we have been able to collect vital data as part of our environmental baseline study work about ecosystems and societies which until now have not been investigated in depth. This not only provides us with the necessary information to design and put in place the best environmental management programs but also generates benefits for local stakeholders who gain a deeper insight into their region's habitat.

In November 2008, the Environmental Impact Study for El Morro was completed and submitted to local authorities for evaluation. Likewise the Environment Impact Study for the Rio Cuervo generating facility, part of our Energía Austral hydroelectric project, was completed, and is now under review prior to its planned submission to the local authorities in 2009. Meanwhile, considerable progress was also made in 2008 on collecting environmental and social baseline data for El Pachón, Frieda River and Tampakan.

Of particular importance was the launch of a study into aquatic life and water quality in the Sepik river basin near our Frieda River project in Papua New Guinea. Conducted in partnership with Australian environmental consulting company Hydrobiology, the National Fisheries Authority, the Department of Environment and Conservation and local communities along the Sepik River, this study will provide important data about the health of the river system following the introduction of non-native fish species as part of a stocking program in the early 1990s.

<sup>1</sup> The TRIFR of 5.7 in 2007 published in my message in the 2007 Sustainability Reports included the Las Bambas project which was transferred to the Southern Peru Division at the end of 2007 and is now included in that division's figures.



Local craft: a local lady displays a home-made bilum

Our commitment to environmental best practice does not stop with scientific baseline studies but also involves actively helping local communities to preserve their environments. A good example is the Tampakan project's reforestation program. In conjunction with local government and non-governmental organizations, the program aims to plant 50,000 seedlings every year, assisting in regional reforestation efforts and creating a buffer zone between the copper project and the surrounding vegetation.

## Our communities

We are committed to establishing strong and enduring partnerships with local stakeholders and we have developed formal consultation processes with communities around our projects to guide our Corporate Social Involvement (CSI) programs and to allow their needs, resources and concerns to be considered in the final project design.

We are pleased to have pioneered this collaborative approach at the El Morro project where the technical solutions outlined in the Environmental Impact Study took on board the concerns that local people had expressed

in meetings over the previous three years. Responding to community concerns, the final project design included a desalination plant to supply sea water to the proposed mine operation; the construction of an access road away from local villages and farmland; and the use of thickened tailings technology.

During 2008, our projects continued to support a range of local education initiatives including improvements to educational infrastructure, the provision of training to teachers, and support for skills development programs.

While increasing education opportunities for local communities was a priority area for all our projects, we also made significant investments in the areas of health, social and community development, enterprise and job creation, arts and culture and environment.

Through these development programs we strive to bring tangible benefits to communities associated with our operations to ensure they remain empowered and sustainable well beyond our presence in the area.

## Looking ahead

The dramatic slowdown of the world economy in the last quarter of 2008 will continue to challenge our industry in the year ahead. In response to the changing economic environment, Xstrata Copper has taken proactive and decisive action that I believe will ensure the sustainability of our projects in the short to medium term and position us to take advantage of the inevitable upturn in our industry.

We remain committed to advancing our projects and to seeking excellence in our sustainable development performance through continued consultation with our communities, respect for the environment and an unrelenting focus on the safety and health of our workers.

I hope that this report on the Frieda River project, prepared in line with the Global Reporting Initiative's G3 recommendations and in line with Xstrata's commitments to the ICMM, will be an effective tool for conveying information that is of interest to local stakeholders on its sustainability performance during 2008.

**Peter Forrestal**  
Executive General Manager  
Project Evaluation  
Xstrata Copper

# General Manager's message

The Frieda River Project experienced a very busy year in 2008 during which much was achieved: the scoping study conducted in 2007 was completed in January 2008, an extended scoping study was completed in December 2008 and a commitment was made to take the project into the pre-feasibility study stage in January 2009.



During 2008, expanded field operations nearly tripled the number of hours worked on the project as compared to 2007. Safety, environment and community affairs remained priorities and whilst the overall safety record improved, disappointingly the project suffered four high potential safety incidents, two of which resulted in serious injuries.

The project is located in an isolated portion of northwestern Papua New Guinea. It was discovered over 40 years ago but has remained on the drawing boards due to a range of issues but largely due to the amount of infrastructure the project will have to establish prior to commencing a mining operation. A project configuration (execution model) was defined in the scoping study; however the study showed that further work was required to lift our confidence in the Horse-Ivaal-Trukai mineral resource estimate. So 21,280 metres were drilled between April and December 2008, a tremendous effort for a helicopter supported operation.

In addition it was noted that much data, often with long acquisition periods, was required to allow us to lift the accuracy of the engineering studies. As a result of this environmental baseline studies were expanded, geotechnical studies commenced and a wide ranging topographical survey was undertaken.

The environmental baseline studies warrant special mention. As part of these studies we conducted what is the largest ever biological

survey of the Sepik River, and I look forward to seeing the results which are due for release in the second quarter of 2009.

In late 2008 revised engineering studies, using inputs from new geological resource models and an improved understanding of the operating environment, delivered the results of the extended scoping study.

An execution model was again defined but with greater confidence than the January 2008 model. Whilst our understanding of the project risks and likely configuration of the project has improved, the capital required to build the project has increased and remains a significant challenge.

The expanded program in 2008 required organisational change. What was previously a largely exploration orientated operation, became one capable of managing a broad range of technical studies. Camp facilities were improved to accommodate the expanded workforce. Systems, particularly Sustainable Development (SD), were strengthened and staff trained in their use. It was particularly pleasing to see staff achieve internationally recognised certificates of achievement in core operational areas.

Whilst approximately 80% of our workforce is sourced from the districts adjacent to the project, it is recognised that the opportunities for local communities to meaningfully engage with the project are limited due to the low levels of literacy and numeracy. In 2007 an adult literacy and numeracy program for staff was successfully trialled. In 2008 we expanded the program and engaged an adult educator to be based at site to provide routine tuition and coaching.

Government services to communities in the project area are limited, accessibility being a major challenge. The re-introduction of government services through engagement with provincial, district and local level government is key to the development of a sustainable project. Quarterly meetings of the joint consultative committee that consists of bureaucrats from East Sepik and Sandaun

provincial governments and Xstrata Frieda River Limited staff continued through 2008.

Progress with service delivery was made with the Sandaun Health Department who provided Healthy Island Concept training plus follow-up to two villages. They also provided HIV/AIDS awareness training to the community. The district team from Ambunti provided regular support to the operation including community consultation, bargaining operations on the Sepik River, and helping resolve various community law and order issues. These positive demonstrations of support are warmly acknowledged.

Regular engagement with the communities surrounding Frieda River continued in 2008, largely through employment at the project. Communication was improved with our donation of seven HF radios to the community and opportunities to maximise the benefits of these facilities will be explored in 2009. Special thanks are extended to our hosting communities.

The Frieda River Project team, including our contractors, achieved much in 2008 in physical outputs but also importantly through attitude towards personal safety, alignment of purpose and in the uptake of standard industry systems. This was our second year in Papua New Guinea, and we became more confident in the operating environment.

The effects of the global economy's downturn in the latter portion of 2008 will make 2009 extremely challenging. It will require a strong focus on leadership, planning and the use of our systems to maximise the value of capital invested and the opportunities that this will create. I look forward to working with the Frieda River Project team and stakeholders to meet these challenges.



**Dugi Wilson**  
General Manager  
Frieda River Project

# Targets and scorecard

We strive for continuous improvement in our health, safety and environmental performance and to sharing the benefits of our activities locally, so that we provide a positive legacy of stronger, more sustainable communities.

## Safety

2008 target	Performance	2009 target
Zero fatalities	✔ Zero fatalities	Zero fatalities
TRIFR < 27	✔ TRIFR 5.5	TRIFR < 5
Improve document control within the SD (previously HSEC) system	✔ Annual plan and quarterly review established; tracking system for actions resulting from use of the SD system	Targeted coaching and mentorship to expand ownership of the SD system
Structured competency training introduced	✔ First Aid, load master training, chainsaw and tree felling training	Regular HIV/AIDS awareness training, expanded competency based training
		Initiate a geohazards tracking system

## Environment

2008 target	Performance	2009 target
Expand baseline environmental monitoring to include biodiversity surveys and increased water monitoring	✔ Water quality and sediment sampling continued; biological survey conducted in November 2008	Complete the Sepik River biological survey and release results in appropriate public forums
Re-establish river gauging sites and weather stations	✔ Eight river gauging stations, 12 rain gauges and two weather stations installed	No Category 3 environmental incidents
		Agree with PNG Government on the scope of the Environmental Impact Statement (EIS)
		Commence the mine material characterisation program
		Complete a detailed scoping exercise for the terrestrial ecology and cultural heritage Environmental and Social Impact Assessment (ESIA) studies

## Community

2008 target	Performance	2009 target
Expand baseline social studies to include potential infrastructure sites	✘ Delayed to form part of the formal ESIA process	Undertake land ownership of the project area boundaries either agreed or moved through the mediation/disputes settlement process
Expand stakeholder information sessions to cover areas that may be affected by a potential operation	✔ Formal stakeholder information sessions conducted at Vanimo, Ambunti, Telefomin, Green River, Yellow River Mission, Lumi, Aitape, Ok Isai, Paupi and Frieda Strip as well as existing locations on-site, at Vanimo, Telefomin, Wewak, Ambunti and Port Moresby	Establish and implement stakeholder engagement plan
Facilitate the improvement of health and education services through discussions with, and support of, provincial government and other stakeholders	✔ Health services improved through assisting the Sandaun Health Department in the distribution of treated mosquito nets, Healthy Island Concept training in two villages and HIV/AIDS education in the communities; East Sepik Provincial Government stated that they have included funds in the 2009 budget for three additional elementary school teachers	Establish community capacity building strategy and tactics with a particular focus on adult education
Expand the adult literacy and numeracy training program to include more employees with courses delivered at regular intervals	✔ Contract signed with the International Education Agency (IEA) to routinely deliver adult numeracy and literacy training to staff on-site	Continue discussions with provincial and district administrations to align development plans and improve government services to the region, engage with partners who may be able to support or supplement this process
		Scope community based Reduced Emissions from Deforestation and Degradation (REDD) schemes

✔ Achieved      ✘ Not achieved

# Scope of report

This report details the economic, health, safety, environmental and social performance of the Frieda River Project from 1 January 2008 to 31 December 2008. We publish our reports annually and this is the second report produced by the Frieda River Project.



A helicopter supported drill rig move in progress

As part of Xstrata Copper's commitment to transparency and stakeholder engagement, all its operating divisions and major development projects are required to publish their sustainability performance annually.

The Frieda River Project report is one of 11 sustainability reports published by Xstrata Copper that details our 2008 sustainability performance.

An overview of Xstrata Copper's sustainability performance is also provided in the Xstrata Group Sustainability Report. All these reports are available on the Xstrata sustainability website [www.xstrata.com/sustainability](http://www.xstrata.com/sustainability).

A general description of Xstrata Copper's SD policies and standards has been provided in this report. The full policies are published on the Xstrata website [www.xstrata.com/corporate/commodities/copper/publications](http://www.xstrata.com/corporate/commodities/copper/publications). All monetary values are expressed in US dollars unless otherwise stated.

## Target audience

The Frieda River Project Sustainability Report 2008 will provide a broad range of stakeholders with information about Xstrata Copper's sustainable development policies and practices and our performance at the Frieda River Project.

Our target audience groups include local, district, provincial and national governments, intergovernmental bodies, local communities associated with the project, employees and their families, local contractors, development organisations and non-governmental organisations (NGOs), business partners including suppliers and our joint venture partners Highlands Pacific and OMRD, media, and industry participants.

## Changes to size, structure, ownership of operations

Under the joint venture agreement Xstrata has 81.82% of Highlands Pacific's share of the Frieda River properties. In a prior agreement between Highlands Pacific (now funded by Xstrata) and OMRD, either of these parties may elect to fund or not contribute to annual budgets. The non-contributing party's equity in the project is reduced at a rate that takes into consideration the proposed budget and prior expenditure.

In 2008 OMRD elected not to contribute to funding activities and as a result their equity in the project was reduced to 8.2% and Highlands Pacific's and Xstrata's equity was increased to 16.7% and 75.1% respectively.



Frieda base camp



John Wass, Senior Geologist, receives drill core

## Defining report content

Sustainable development topics or issues that are material to the Frieda River Project or have the potential to become material to the long term success of our business have been prioritised in this report. We have aimed to provide a complete and balanced view of our sustainability performance tailored to the expectations and interest of our stakeholders. In determining which issues or topics are material to the Frieda River Project we have considered:

- risk assessments conducted as part of the extended scoping study;
- feedback on our sustainability performance and reporting from key stakeholders;
- company-specific issues raised either directly or indirectly by external stakeholders including NGOs, governments, communities and investors;
- industry challenges raised in industry associations and forums;
- Xstrata plc's Business Principles and Sustainable Development policy and standards;
- Xstrata Copper's SD framework, policies and standards; and
- indicators and topics outlined in the GRI G3 Guidelines, the International Council on Mining and Metals' (ICMM) Principles ([www.icmm.com](http://www.icmm.com)), and other best practice guidelines and initiatives.

## GRI compliance

This report has been prepared in accordance with the Global Reporting Initiative's (GRI) Sustainability Reporting G3 Guidelines, the world's most widely used sustainability reporting framework. These guidelines enable readers of our sustainability reports to benchmark our SD performance with respect to laws, norms, codes, performance standards and voluntary initiatives; and to compare our SD performance over time.

A GRI index detailing how the Frieda River Project has addressed the G3 Guidelines can be found on pages 23–24 of this report. As the project is still in the exploration phase some of the indicators contained within the G3 Guidelines are not material to our project. We have indicated in the GRI index where this is the case.

## Quality assurance

The numerical data in this report has been verified both within the Xstrata Copper commodity business and the Xstrata Group. The data management and reporting systems in place for the collation and aggregation of data are subject to annual assurance under Xstrata's independent SD assurance audits program.

Much of the qualitative, text-based data in this report was gathered via an Xstrata-wide sustainability survey. This data is also reviewed by the independent external verifier as part of Xstrata's Corporate SD assurance program.

**"This report has been prepared in accordance with the Global Reporting Initiative's Sustainability Reporting G3 Guidelines, the world's most widely used sustainability reporting framework."**

Independent auditors Ernst and Young have verified Xstrata's data management and reporting systems as part of its external verification of the Group's 2008 Sustainability Report. A brief description of the assurance process and the signed assurance statement are provided in the Group's 2008 Sustainability Report.

## Feedback

We welcome your feedback or questions on any aspect of Xstrata Copper's performance or reporting regarding the Frieda River Project. Xstrata Copper's contact details are provided on the back cover of the report, or call +61 7 3721 5200, or email us at [friedariver@xstratacopper.com.au](mailto:friedariver@xstratacopper.com.au).

# Our approach to sustainable development

Our commitment to the principles of sustainable development is based on our belief that operating responsibly and to the highest international standards mitigates risks, creates opportunities and enhances our reputation and competitive position.



Rivers are an integral part of community life

Xstrata Copper is committed to balancing social, environmental and economic considerations in how we manage our business. Although the life span of our activities is finite, we aim to invest in skills, education, health, social and enterprise development that lead to economic benefits and sustainable communities that outlive our operations in any particular region.

We strive to preserve the long-term health, function and viability of the natural environments affected by our operations and to maintain safe and healthy workplaces based on mutual respect, fairness and integrity.

To ensure harmonious relationships with our stakeholders, minimise risk and secure an ongoing licence to operate, we aim to create mutual benefits for stakeholders, working in partnership with the various parties who have an interest in or are affected by our project.

Xstrata Copper takes a systematic approach to setting targets, monitoring performance and reporting (both internally and publicly) against our targets in each of the key sustainability areas, as demonstrated in this report. The Xstrata Copper SD Strategy and Management Framework is published in full on Xstrata's website under [www.xstrata.com/corporate/commodities/copper/publications](http://www.xstrata.com/corporate/commodities/copper/publications).

The Xstrata Copper SD framework interprets and supports the Xstrata Group's SD Policy and 17 SD Standards, which were revised in 2008, and is consistent with our Definition of Purpose.

## Xstrata Copper's Definition of Purpose

We will maximise value for shareholders by successfully growing and managing an industry-leading portfolio of copper assets that deliver superior returns.

We will achieve this in a safe, environmentally and socially responsible way, in open partnerships between our people and with communities, governments and other stakeholders.

## Our strategic objectives

- Injury-free, safe work environments
- Recognised leadership in environmental performance
- Reputation for social responsibility
- Realisation of the full potential of our people
- Achievement of the full capacity of our physical assets
- Cost competitiveness through the cycles
- Value creation through dynamic growth and continuous improvement
- Effective implementation of common key systems and strategies.

## Our values

Our decisions and actions will demonstrate the following values:

- Honesty
- Dependability
- Respect
- Confidence
- Ingenuity
- Courage
- Passion.

## Precautionary approach

Xstrata Copper takes a precautionary approach to the environmental management of its global activities. We therefore use a comprehensive risk-based approach to manage the potential detrimental impacts of our activities. This approach means that even in the absence of evidence that environmental degradation is occurring or will occur we take action to mitigate the possibility that it will.

## Key challenges and opportunities

Xstrata Copper requires all its sites and operations to identify their principal risks. From internal review and feedback from stakeholders, the Frieda River Project has identified a number of key challenges that may impact on our ability to successfully operate our business now and in the future.

The Frieda River Project is in the study phase with site operations orientated to supporting the drilling program and a range of information gathering studies, therefore our current risks are largely related to community and safety. Other than fuel, the operation does not use chemicals in sufficient volume to affect the environment. A risk register is maintained on-site and procedures have been established to monitor adherence to those procedures. All incidents are recorded and medium to high potential incidents are investigated.

Risks associated with air charters, both rotary and fixed wing, remain the greatest area of concern as there is no engineering solution to the associated risks, and administrative procedures remain a significant portion of the risk mitigating solution.



Women's adult education program at Wabia village

Project study activities have a strong focus on better understanding the risks that may be caused by building and operating a mining project. These risks include: waste and water management, retention of biodiversity, social change, community expectations coupled with government performance, project constructability and government capacity to permit the project.

The risks associated with community expectations and social change resulting from the potential injection of wealth to the region if the project is developed, is being managed through positive engagement with the communities and provincial governments.

Some of the project's current initiatives are designed to support local communities to become self-reliant: for example the Healthy Island Concept and literacy and numeracy training. To understand the project's environmental risks, a broad range of baseline studies are being undertaken and some of this information, for example fish stocks, will be valuable to governments and communities to improve planning.

The project is investigating the possibility of hydroelectric power generation near to the site which would significantly reduce the project's carbon footprint and provide a positive legacy for the region post-mine closure. With Frieda River located in a tropical rainforest, further carbon emissions opportunities through Reduced Emissions from Deforestation and Degradation (REDD) will be explored in 2009.

**“We strive to preserve the long-term health, function and viability of the natural environments ...”**

## Principal memberships

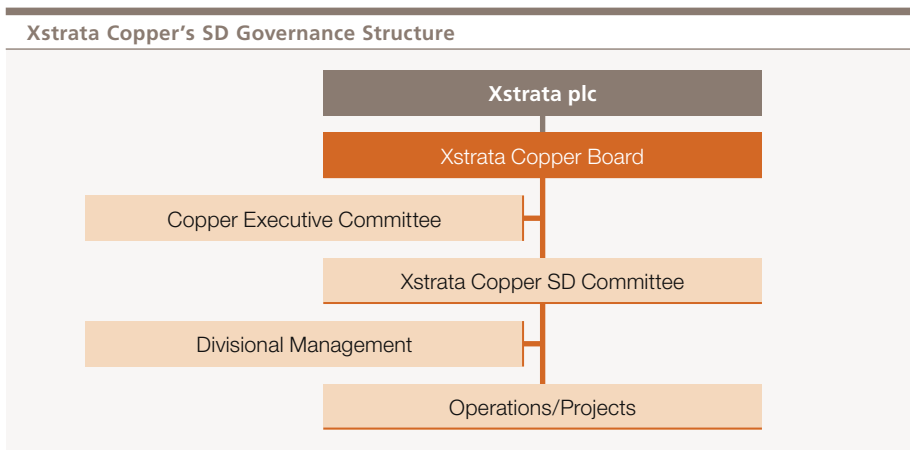
Xstrata plays an active role in a number of significant international and national industry organisations and multi-stakeholder groups, through membership, funding, provision of expertise and participation in committees and working groups. These include our membership of the International Council on Mining and Metals (ICMM), and our support of the Extractive Industries Transparency Initiative (EITI).

Xstrata Copper plays a similar role in organisations that are copper-specific and those that are unique to geographical areas where Xstrata Copper is the only Xstrata commodity business in operation.

In Papua New Guinea, Xstrata Frieda River Limited is a member of the Chamber of Mines and Petroleum and the Australia Papua New Guinea Association.

# Governance and ethics

We are committed to best practice in corporate governance, recognising that strong and accountable governance is directly linked to our ability to manage risk, seize opportunities and achieve optimal performance.



## Governance structure

Xstrata Copper operates within the structure of Xstrata's robust standards of corporate governance as set out in Xstrata's Statement of Business Principles and SD management standards. Further information about Xstrata's governance mechanisms is provided in the corporate governance sections of the Group's Annual Report and Sustainability Report.

This approach is supplemented by Xstrata Copper's own common systems and policies in the areas of safety and health, environment, community, risk management, human resources and sustainable development.

Xstrata Copper's performance against these SD systems and policies is monitored and evaluated by the Xstrata Copper SD Committee (renamed from HSEC Committee to reflect the continuing evolution and broadening scope of sustainable development issues). The SD Committee meets monthly to address issues and review SD performance across the business unit's operations and projects.

The Executive General Manager Project Evaluation is a member of the Xstrata Copper SD Committee and is responsible for developing, setting and implementing SD strategies and management systems for the Frieda River Project.

Through the Xstrata Copper Board, the business unit's SD performance is regularly reported to the Xstrata Executive Committee.

## Sustainable Development assurance

Xstrata Copper undertakes a combination of internal and external SD assurance activities to ensure that the requirements of Xstrata Group's SD Policy and Standards are being met. This includes the completion of specified internal and external audits against the requirements of the Xstrata SD Policy and SD Standards. The process also ensures that SD targets for material issues have been identified, our monitoring systems are robust, and our reporting is material, accurate and timely.

The Frieda River Project management systems and performance were audited by Xstrata plc in June 2008 and achieved a rating of "Good", the second highest in a five point rating system. Four minor issues to do with administrative procedures were identified, all of which have since been addressed. This audit looked at overall management systems and performance, not just the SD systems.

## Bribery and corruption

Xstrata's Business Principles state that we do not offer, solicit or accept any form of inducement or bribe. Xstrata's internal audit function, supported by KPMG, takes into account identified fraud and compliance risks associated with our key business activities, including the ethical performance expectations contained in our Statement of Business Principles.

In addition, Xstrata Copper's Fraud Policy explicitly states that the organisation will not tolerate any incidence of fraud committed by employees or others, either from within or outside the organisation and will take immediate and serious action against those persons committing a fraud, irrespective of length of service or position. It outlines the channels available for employees or others to safely and confidentially report fraud or other unethical behaviour that is contrary to the Xstrata Business Principles.

No formal analysis has been undertaken of the corruption risks associated with the Frieda River Project. However risks have been identified and managed through the use of first tier international companies to provide appropriate services in areas with identified risks.

Information on company procedures and policies with regard to ethical behaviour is regularly circulated to supervisory staff. Our business principles are presented to staff and contractors at ad hoc stakeholder meetings on-site.

There were no incidences of corruption or unethical behaviour reported at the Frieda River Project during 2008.

## Human rights

Xstrata's Business Principles contain our endorsement of the principles set out in the UN Universal Declaration of Human Rights and the International Labour Organisation Conventions.

For Xstrata, the main areas of focus are protecting the rights of our employees and contractors to work for equal pay, to associate freely, to a safe and healthy work environment, to non-discrimination and fair treatment and to legal rights. We also support the rights of employees, community members and other stakeholders to be treated with dignity in a manner that respects cultural heritage, traditions and norms.

All employees at Xstrata's Frieda River Project have written contracts. Prior to signing these contracts their rights are explained to them. Contracts are let with suppliers who have good reputations and who are able to provide certificates of insurance. Contracts with small organisations in the project area in which less is known about them include clauses about the application of the PNG Employment Act.

The Frieda River Project does not employ security personnel directly or through our contractors.

## Child and forced labour

Xstrata's Business Principles uphold the elimination of all forms of forced or compulsory labour and stipulate that no form of child or forced labour will be tolerated. All Xstrata operations report the age of their youngest employee or contractor on an annual basis and are audited through the internal audit risk management program. The PNG Employment Act stipulates that all employees must be 16 years or older. The youngest employee at the Frieda River Project is 18 years old.



Patrick Imaroto at a workshop on inward migration with senior East Sepik bureaucrats in Wewak

## Engagement with provincial and local governments

Due to the isolation of the Frieda River Project, government presence at all levels and related services such as health, education, town planning, law and order in the area have been limited. Where appropriate, the project continues to support provincial and local level governments to re-establish and expand their presence in the area and ensure that the provision of services is sustainable.

Overall this strategy aims to:

- ensure that services are based in existing population centres;
- prepare government for significant inward migration at provincial and local levels should the project proceed;
- identify synergies in infrastructure and service needs; and
- balance the influence and responsibilities of the Frieda River Project.

The main vehicle for formal interaction between the Frieda River project and the governments of East Sepik and Sandaun provinces and districts has been the Joint Provincial Consultative Committee (JPCC) which was established in 2007. Three JPCC meetings were arranged however one failed to take place due to issues with domestic air travel. On that occasion a workshop on inward migration issues was held instead with the contingent from East Sepik province and the Mineral Resources Authority.

The JPCC also considered the results from health and education surveys conducted in 2007 which resulted in a number of positive outcomes including:

- the roll-out of the World Health Organisation (WHO) Healthy Island Concept program by the Sandaun province and follow-up assessments at Wabia and Wameimin 2 villages
- the distribution of treated mosquito nets to communities in the Sandaun province
- funding from East Sepik province for three additional elementary school teachers in the Frieda River area to commence in 2009
- HIV/AIDS awareness training for communities in the Sandaun province.

The members of the JPCC also attended stakeholder meetings with local community leaders held at Frieda Strip. There were three such meetings in 2008. Following these meetings, government officials were transported to the neighbouring villages to consult further with local communities.

Xstrata's Business Principles prohibits political contributions of any kind. In line with our policy, the Frieda River Project did not provide any financial or in-kind contribution to political parties or individuals in 2008. There was also no financial assistance received from government in 2008.

# Our operation and economic contribution

We are proud to play an important role in growing and sustaining Frieda River communities by generating employment opportunities, supporting local businesses, contributing to government taxes and charges and supporting community development initiatives.

**Table 1: 2008 Economic Contribution**

Type of expenditure	Expenditure (USD)
PNG remuneration	894,695
Cost of all goods, materials and services purchased from PNG suppliers	5,118,945
PNG paid contracts and other expenses	9,585,619
Government taxes and permit payments	94,611
Investment in CSI programs	152,819
Donations/sponsorships	2,749
Infrastructure investments and services provided for public benefit	Nil
<b>Total PNG</b>	<b>15,849,438</b>
<b>Total Project</b>	<b>30,131,546</b>

## Project overview

The Frieda River Project is a 'greenfields' copper-gold project located on the border of Sandaun and East Sepik provinces, Papua New Guinea, approximately 200 kilometres from the coast and 70 kilometres from the navigable Sepik River. The project is a joint venture between Xstrata Frieda River Limited (75.1%), Highlands Frieda Limited (16.7%) and OMRD Frieda Co. Limited (8.2%). We exercised our option and took equity in and management of the project in January 2007. To retain our project equity we must deliver a feasibility study by January 2012; failure to meet this objective will result in our equity being returned to Highlands Frieda Limited (wholly owned by Highlands Pacific). In addition to the Frieda River properties we retain an option to purchase the exclusion covering the Nena deposit for \$10.8 million.

Copper mineralisation was first located in 1965 and since then there have been numerous exploration initiatives. Two significant mineral resources have been defined by this work, a copper porphyry deposit at Frieda River with 840 Mt @ 0.53% Cu, 0.28 g/t Au using a 0.3% Cu cut off and a high sulphidation epithermal deposit at Nena with 51 Mt @ 2.43% Cu, 0.57 g/t Au using a 0.5% Cu cut off. (A JORC compliance

statement is published on Xstrata's website under [www.xstrata.com/corporate/commodities/copper/publications](http://www.xstrata.com/corporate/commodities/copper/publications).)

The project has been the subject of several studies. The requirement of the project to build all of its own infrastructure has been the main hurdle to its development; very little of the current infrastructure in Sandaun or East Sepik provinces is of use to the project.

The project execution model defined in the extended scoping study completed in December 2008 was as follows:

- An open pit operation is situated at Horse-Ivaal-Trukai.
- One copper concentrator is constructed and concentrate is transported by pipeline to a new port on the north coast of PNG for export.
- The Horse-Ivaal-Trukai deposit is mined at 40 Mtpa.
- Hydroelectric power is generated near to the project site.
- A tailings storage dam is constructed.
- The project delivers approximately 160,000 tpa copper metal and 240,000 oz per annum gold for 27 years.

In December 2008 approval was given to move the project into pre-feasibility stage in early 2009.

## Economic contribution

Although still in the scoping study phase, the Frieda River Project plays an important role in the provincial economies of Sandaun and East Sepik provinces by providing employment opportunities for local people and business opportunities for local suppliers.

The project was sole funded by Xstrata Copper in 2008. The amounts reported in the adjoining table are for the complete project (100%) and not Xstrata Copper's equity in the project.

In 2008 Xstrata Copper contributed \$15.8 million to the PNG economy (see Table 1) through payments to our employees, contractors, suppliers and in government taxes and permit payments. Overall, this accounted for 53% of project expenditure.

The Frieda River Project also made a significant contribution to the local economy during the year by sourcing and purchasing, where possible, supplies and services from local companies. With the exception of some computer equipment, all supplies are sourced locally.

In 2008, 41% of our contract expenditure (which totalled \$23.9 million) was provided to 25 local companies.

The Frieda River Project did not make any major infrastructure investments in 2008. However, we initiated infrastructure studies which, should the project be developed, have a significant positive impact on the regional economy.

In addition, through its presence in the area, the project also provided other benefits to the community including improved access to medical facilities, telecommunications support, and literacy programs (see case study page 19).

# Workplace and our people

Ensuring the safety and health of our employees and contractors in the workplace is of primary importance to Xstrata Copper. We aim to operate with 'zero harm' to our employees and contractors and believe that all work-related illnesses and injuries are preventable.



## Health and safety

As outlined in Xstrata Copper's Health and Safety Policy, we strive to create and sustain injury-free, safe work environments for everybody in our workplaces. Zero harm is our goal. To achieve this we make our management accountable for safety performance, train our employees to improve their safety knowledge and skills and make them aware that they have a responsibility to themselves, their family and friends to work and behave safely.

We also ensure that every task undertaken in our workplace has a safe system of work identified and our people have tools and equipment that are fit for purpose and well maintained to complete tasks safely and productively. Furthermore, our regular health-screening programs monitor our employees' health, wellbeing and fitness for work.

Xstrata Copper uses a risk-management system to identify, assess and eliminate or control safety risk. When an unsafe condition is identified or when a safety incident occurs it is investigated immediately and action is taken to eliminate the risks involved. Safety auditing occurs regularly across our business to improve safety standards and practices and our safety performance, safety initiatives and issues are regularly communicated to all of our people.

An internal audit in late 2007 of the Frieda River Project SD system identified a number of deficiencies. During the first half of 2008, these deficiencies were addressed. Key new documents developed were: a crisis management plan, an annual SD plan with a quarterly review process, delegated authorities within the SD system and an updated risk register.

## Safety performance

There were no fatal accidents at the Frieda River Project in 2008. The total recordable injury frequency rate (TRIFR) was 5.5 due to three restricted work incidents (RWI), which were also lost time injury (LTI) incidents, that resulted in a total of 63 days' restricted work. The disabling injury severity rate (DISR) was 116.

There were unfortunately two serious accidents in 2008. In the first a branch from a tree being felled broke the hip of the chainsaw operator. Poor operating procedures and capabilities were identified as the main causes of the accident. As a result procedures were revised and competency training was provided. In the second a drill contractor was hit in the face by a spanner whilst changing drill rods which caused severe bruising to his face. The drill controls were re-engineered to prevent recurrence. In both cases the emergency evacuation procedure was initiated and the injured personnel flown to hospital.



A start work meeting at Frieda base camp

To help improve our safety performance and keep the focus on safety at the Frieda River Project, our workforce is advised of safety initiatives and reminded of specific procedures that are pertinent for the day's activities at the beginning of the daily start work meetings.

Risk assessments are undertaken by personnel conducting new activities or moving to an uncontrolled site. These assessments are compulsory for all personnel on-site, including visitors.

The site management team meets daily to discuss operational and safety performance of that day and follow-up actions. The team also meets regularly as a safety committee to develop, monitor and manage the safety system. Safety performance of the project is discussed at all project development management meetings.

New personnel or visitors must undergo a safety induction upon arrival to site, and these are conducted by site safety personnel. A medical to ensure fitness for role is conducted on all new employees.

To ensure we are prepared to manage an emergency, we maintain a crisis management plan which includes a formal emergency response procedure, a medical evacuation plan on-site and stakeholder management procedures. Responsibilities in managing on-site emergencies are clearly identified. There were unfortunately two emergencies at site (outlined earlier in this section) in 2008 and the plans were shown to be effective.

## Occupational health

Due to the relative isolation of the Frieda River Project area and the limited availability of many government services, including medical centres, we have established a medical clinic on-site and there is either a doctor or two trained nurses on duty at all times.

In addition to the medical clinic, the Frieda River Project conducts a health education program for employees as part of the weekly toolbox meetings.

The program covers topics such as personal hygiene and housekeeping, malaria prevention and treatment, First Aid, the use of personal protective equipment (PPE) to prevent diseases such as respiratory disorders, and emergency response.

Xstrata's approach to HIV and AIDS recognises that the disease, its contributing factors and impacts require an integrated, sustainable approach, incorporating workplace and community initiatives and addressing contributing factors in addition to direct testing and treatment services. This approach aims to:

- address contributing factors to the spread of the disease, both those associated with the mining industry and wider community issues;
- encourage 100% of employees, contractors and their partners to take up voluntary testing for HIV;
- encourage 100% of HIV positive employees and family members to take up free treatment;
- empower people to take individual responsibility for their health and eliminate the stigma associated with HIV and AIDS;

- engage traditional healers, peer educators and community outreach champions to promote safe sex, voluntary testing and treatment;
- support initiatives to address the impacts of HIV and AIDS on communities; and
- work together with government, NGOs, specialists and other companies to broaden our impact area as far as possible and ensure long-term sustainability for our program.

At the Frieda River Project, we supplemented 'toolbox' HIV/AIDS discussions with visits from the Sandaun Health Department HIV/AIDS education team to site to educate staff.

The Frieda River health team holds regular clinics in the communities and provides education on basic hygiene and serious disease prevention.

## Employment

At any one time in 2008, the Frieda River Project employed more than 180 employees and contractors. Being a project, the number of contractors and casual staff varied depending on the studies being undertaken. In addition, as the project expanded through the year vacant positions were filled, so the number of employees was not constant.

On average the project employed 130 local and 23 national staff. Most of the contractors were employed by the project's drilling contractor and over half of these workers were from the local district. Of the 26 professional staff employed by the project (see Table 2), 13 were PNG nationals.

When recruiting in 2008, the Frieda River Project continued to give preference to people from local communities within the immediate project area. Second preference was given to people from within the district, then Sandaun and East Sepik provinces. More than 80% of our employees are from the districts adjacent to the project area and 95% are PNG nationals.

In 2008, the Frieda River Project provided housing and education assistance to staff employees, along with medical assistance and training opportunities.

Entry level wages at the project were 180% more than the local minimum wage of 2008, and ahead of the proposed minimum wage that may be introduced in 2009. The salary of men and women undertaking the same role is equivalent.

## Training and education

The Frieda River Project is committed to building the capacity of its workforce through employee training and skills development. Due to the limited education opportunities available to local communities, our employee training programs have focused on improving critical skills such as literacy and numeracy, as well as leadership and supervisory skills.

In 2008, we invested a total of \$130,171 in training programs at the Frieda River Project. We continued on-the-job training with a focus on safety hazard ID and risk assessment coupled with chainsaw maintenance, a tree felling course and load master training, First Aid, HIV/AIDS and health awareness.

Following the successful trial in 2007, we expanded our adult literacy and numeracy training for staff and employed a full-time adult educator based at site to deliver routine tuition and coaching. Staff members were initially assessed through a structured process to determine their level of education. The program was well received and will be expanded in 2009.

In 2008, \$2,749 was invested in scholarship programs for two employees. One is completing a Bachelor of Science in Geology, and the other a Diploma in Business Administration.

All permanent staff received a performance and career development review interview (PER) in 2008. All fixed-term and casual staff's performance was reviewed. In line with Xstrata Copper's policy, 100% of fixed-term and staff employees will receive PER reviews in 2009.

## Diversity and opportunity

Xstrata seeks to employ a diverse workforce, to benefit from a varied range of skills, backgrounds and perspectives. We employ people based on the skills and experience required for each particular position, without discrimination according to gender, race, age, sexual orientation, religion, nationality or any other factor.

Due to the broad range of roles at the Frieda River Project, we employ people with diverse skill levels from those who have no formal education to those with tertiary education. Apart from nationality, the only diversity indicator that we track is gender.

In 2008 all four Xstrata Frieda River Limited company directors were men, and one was a Papua New Guinean national. We employed 22 male and four female professional staff, and 27 male and one female full-time or fixed-term staff members. There were 104 male and two female casual employees.

## Non-discrimination policy

In accordance with Xstrata's Business Principles, we do not tolerate any form of workplace discrimination, harassment or physical assault at the Frieda River Project. There were no incidences of workplace discrimination or harassment reported at the Frieda River Project during the year.

## Labour relations

Within Xstrata Copper there are examples of various workplace relations models, including individual agreements and collective bargaining agreements, reflecting the circumstances of any given site and Xstrata Copper's devolved management structure.

All employees are free to join a union of their choice. Labour relations are a fundamental responsibility of operational management and we seek to have a direct relationship between our employees and line management founded on quality leadership, effective communication, mutual respect and trust.

We consult with employees in advance of any significant operational change. At Frieda River there is no formal notice period; however, progress reports are provided to employees at least every six weeks. Where significant change is planned, discussions are held with community leaders and provincial government officials through the quarterly liaison meetings and with employees at daily meetings at least four weeks prior to the change occurring.

In 2008, no employees at the Frieda River Project were covered by a collective agreement, and no health and safety topics were covered in formal agreements with trade unions. All employees at the Frieda River Project were covered by formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.

**Table 2: Frieda River scoping study – professionals employed**

Brisbane-based Xstrata Copper	PNG-based XFRL	Contractors
<ul style="list-style-type: none"> <li>■ General Manager</li> <li>■ Community Affairs Manager</li> <li>■ Environmental Superintendent</li> <li>■ Shared Services Administrator</li> <li>■ Site Superintendent</li> <li>■ Project Geologist</li> <li>■ Senior Field Technician</li> <li>■ Assistant Accountant</li> </ul>	<ul style="list-style-type: none"> <li>■ Senior Geologist (2)</li> <li>■ Geologist (4)</li> <li>■ Doctor</li> <li>■ Nurse (Health Extension Officer) (2)</li> <li>■ Community Affairs Coordinator</li> <li>■ Trainee Geologist</li> <li>■ Community Affairs Senior Officer</li> <li>■ Community Affairs Officer</li> </ul>	<ul style="list-style-type: none"> <li>■ Project Manager</li> <li>■ Consulting Engineer</li> <li>■ District Geologist</li> <li>■ Senior Geologist</li> <li>■ Senior Field Technician</li> </ul>



Peggie Kouba, Wilton Kure and Waripson Tamkel of the Administration team

# Sustainable communities

We believe that the wellbeing of our employees, their families and the communities in which we operate is crucial to maintaining our social licence to operate.



Xstrata Copper is proud of its reputation for social responsibility and we are committed to contributing to the social, economic and institutional development of the communities where we operate to improve the quality of life for all.

Xstrata Copper's corporate social involvement (CSI) programs are developed in line with Xstrata's SD policy and standards and form an important part of our work with local communities. Through these programs we develop community partnerships in the areas of art and culture, education, enterprise development, environment, social and community development, and health. These community partnerships contribute to the development of sustainable communities and emphasise local capacity building. Xstrata Copper also supports local businesses and employs local people wherever we operate, in order to strengthen local and regional economies.

At the Frieda River Project we aim to assist in the development of sustainable communities through:

- developing capacity in the communities to meet the challenges of the future;
- supporting community educational health programs;
- providing employment and training opportunities for local people;
- sourcing and purchasing from local companies;
- supporting community projects;
- engaging with government and communities to develop local leadership; and
- handling matters in a spirit of trust.

In line with Xstrata Copper's Community Policy, our community relations practices are characterised by open and honest engagement with all our stakeholders through effective, transparent consultation and communication.

We consult and communicate with stakeholders regularly in culturally appropriate and respectful ways, using materials that are easily understood and provide feedback to issues raised in a similar way. We record, monitor and address community complaints. We establish fair and equitable processes for engagement with Indigenous and local communities including, where relevant, free prior informed consent.

## Our community relations program

In 2008 the Frieda River Project community relations program built on the themes developed in 2007: stakeholder engagement, facilitating the provision of government services, community capacity building and the provision of emergency medical support. To facilitate this, two community affairs officers were engaged, bringing the number of permanent staff in the team to four and the medical team was increased by an additional Health Extension Officer (HEO) nurse.

Stakeholder engagement focussed on local community and government relationships. As the project studies expanded to cover geographically broad environmental baseline studies and potential transport routes, the Community Affairs team was engaged increasingly outside the immediate project area, along the Sepik River and on the north coast.

Communication between the project and local communities was also strengthened through the donation of seven HF radios. Educational opportunities using the radios will be explored in 2009.

In 2008 the Frieda River Project spent \$1.3 million on community affairs initiatives (4% of the total operational budget).

## Stakeholder engagement and consultation

In 2008 we consulted extensively with all levels of government, local communities, NGOs, and other key stakeholders, including:

- Wabia, Ok Isai, Paupe, Hotmin, Wameimin 1 and 2, and Fiyak (Amouramin) communities
- A broad range of Sepik River communities
- Communities potentially affected by project infrastructure
- Landowners
- Frieda River Project staff
- East Sepik Provincial Government
- Ambunti (East Sepik) Local Level Government
- Sandaun Provincial Government
- Telefomin (Sandaun) Local Level Government
- NGOs (The Nature Conservancy, Help Resources and World Wildlife Fund)
- Chamber of Mines and Petroleum
- National Government Departments, and
- Members of Parliament from constituencies adjacent to the project area.

This year information dissemination was broadened to include our 'outside but near' stakeholders and those near potential transport routes. Downstream community's day-to-day existence, as well as their traditions and customs, tend to centre on the Sepik River and, as would be expected, there are significant sensitivities to the project's presence in a catchment area to this iconic river.



Peter Nawara, Senior Community Affairs Officer, talks to local community members in the project area

The Community Affairs team provided close support to the hydrological and biological survey of the Sepik River and its tributaries. Information sessions were carried out from the Frieda and Sepik confluence to the mouth of the Sepik. Team members delivered awareness meetings to 21 communities, in two districts and five local level government areas along the Sepik route. The team also delivered awareness to local communities on the north coast and at centres along potential overland transport routes.

The Frieda River Project also attempted to ensure elected government representatives were abreast of developments. The project was pleased to host a site visit for Mr Tony Aimo, local National Member of Parliament and Minister for Correctional Services.

Formal consultation with people in the project area, their representatives and provincial government authorities continued with three quarterly forums being held at Frieda Strip. This was supplemented by informal consultations in the communities.

**“Our community relations practices are characterised by open and honest engagement with all our stakeholders through effective, transparent consultation and communication.”**

Issues discussed tend toward employment, sourcing services locally, community services, due process in registering landowner association, and environmental impact on the Sepik River and wetlands.

Formal consultation with district and provincial government occurred through the JPCC. Results of the health and education surveys conducted in late 2007 were considered by this committee which resulted in some positive outcomes in these areas (see page 11).

In addition to this the JPCC discussed the land ownership determination process and shared district and provincial plans with the aim of developing a unified plan to manage inward migration.

The Ambunti district officials played a key role in assisting with community consultation with respect to barge movements along the Sepik River and the various environmental baseline studies of the river system.

We also established contact with credible conservation-based agencies in 2008, including World Wildlife Fund (WWF) and The Nature Conservancy.



A sing sing group at the Ambunti Puk Puk festival



Amouramin community members

## Community education

Addressing the poor community literacy and numeracy skills is a key step to building the community's capacity to engage with the project. Such engagement includes the company's requirement to obtain prior informed consent to mine development, identifying and actioning opportunities that result from development and building communities better equipped to deal with the social change that will occur should the project proceed.

In 2008 we widened the scope of our adult literacy program to include local project employees and women from local communities. Two seminars were conducted in 2008 in Wabia and Amouramin and were attended by 68 women from all seven villages that surround the project. One of the aims of this approach was to strengthen the ties within the communities which will develop leaders and reduce potential inter-community conflict. The seminars were run by the AGAPE charity based in Wewak.

The project will continue to facilitate literacy and numeracy skills training for local employees and communities. Sustainability will be enhanced by identifying local trainers to deliver the program regularly.

Education in the Frieda River area will also receive a boost in 2009 with three additional elementary school teachers funded by the East Sepik provincial government.

## Community health

The Frieda River Project's medical team spends around one third of its time providing support to the community. This includes providing advice over the radio, visiting patients in their village if required, providing and administering medicine and, in emergency cases, evacuating a patient and their guardian to an appropriate health centre or hospital.

There were two emergency (by helicopter) community medical evacuations and eight medical referrals using the company fixed wing charters during the year. On recovery, the patients and their guardians were transported back to their villages. Project staff also delivered community health and education sessions during routine visits to the local village covering topics such as the causes and prevention of serious diseases.

In 2008, the Frieda River Project also supported the Sandaun Health Department community health initiatives including Health Island Concept Training, the distribution of mosquito nets and HIV/AIDS awareness training.

## Community grievances

All community complaints at the Frieda River Project are recorded in our complaints register, including what action is taken and by whom. There were no formal complaints in 2008.

## Indigenous rights and land ownership

Xstrata Copper respects the traditional rights and cultural heritage of Indigenous people, recognising that these people have a distinct ethnic identity and are often historically disadvantaged. We ensure that Indigenous and other historically disadvantaged groups are properly identified in stakeholder engagement. We structure our engagement activities in a manner that is culturally appropriate and facilitate the active involvement of Indigenous peoples in consultation, including capacity building initiatives where necessary or appropriate.

Land ownership – identifying the rightful owners of land – is a major issue facing the communities around the Frieda River Project.

In 2007 the Sandaun and East Sepik provincial governments conducted a land investigation study. The study was reviewed by the State Solicitor in 2008 who confirmed the original land determination, though it should be noted that this covers only a small part of the potential project footprint. Further work will be undertaken in 2009 and 2010 to define the landowners and land users and their respective customary rights in sufficient detail to allow appropriate compensation to be paid and disputes to be resolved. No communities reside on the current mineral resources.

There were no incidents of Indigenous rights being violated in 2008.

## Mine closure

Mine closure plans are being factored into the project design.



Members of the Wameimin 2 community indicate new ditches and cleared undergrowth that was undertaken as part of the Healthy Island Concept Program.

## case study

# Delivering the Healthy Island Concept to villages in Papua New Guinea

The Healthy Island Concept Program was delivered to two remote villages in north-west Papua New Guinea in 2008 with the assistance of Xstrata's Frieda River Project team.

The initiative was a direct result of our engagement with the Sandaun provincial administration which in 2007 culminated in the AusAID supported health and education surveys. The Sandaun Health Department presented an Annual Action Plan which included a number of the health survey's recommendations, one of which was to roll out the World Health Organisation (WHO) Healthy Island Concept Program. The program is a facilitated process designed to empower villages to take responsibility for health in their communities.

The Frieda River Project was involved in the planning process and provided transport and support to the provincial government educators during their visits with the communities. A project nurse also accompanied the government health trainers. We also provided transport and logistical support to follow-up visits conducted in November and December 2008.

**“The workshops taught us practical ways to look after our health by eliminating the source of infection.”**

Jenet Tilapning, Wameimin 2 resident

The program was run at the villages of Wameimin 2 and Wabia in the Frieda River area and began in July 2008. It involved workshops being conducted in both villages by Provincial Government Health Promotion Officer, Joane Yawi. Joane worked with the villagers to define the greatest health threats in their communities and develop goals and actions to combat them.

People in both villages identified malaria as the greatest single health threat and through the workshops they were able to develop actions to help combat this threat. They committed to digging more drainage ditches, clearing bush and cutting grass to drain surface water more efficiently, with the aim of substantially reducing the numbers of malaria-carrying mosquitoes.

The Frieda River Project is committed to working in partnership with the provincial governments of Sandaun and East Sepik to help improve health and education services in the Frieda River area. The trial of the Healthy Island Concept in Wameimin 2 and Wabia plays an important role in the project's sustainable community initiatives program, and will be expanded to other Frieda River communities in 2009.

# Environment

Xstrata Copper strives for industry leadership in environmental performance and its operations and projects are required to meet and, where practicable, exceed relevant laws, regulations and standards.



We limit our environmental impacts through the efficient use of natural resources, by limiting or preventing pollution and by reducing waste. We manage biodiversity related risks and seek to avoid, minimise or mitigate any negative effects on biodiversity caused by our operations.

When environmental incidents do occur we determine the cause and take steps to prevent recurrence. Xstrata Copper also plans, operates and closes operations in a way that is consistent with our commitment to sustainable development.

In line with Xstrata Copper's Environment Policy, the Frieda River Project is committed to achieving the highest standards of environmental performance. In 2008 we commenced detailed planning for conducting the Frieda River Environmental and Social Impact Assessment (ESIA) and we also expanded baseline environmental monitoring and consulted with local communities regarding our monitoring program.

In 2008, the total environmental protection expenditure for the Frieda River Project was \$1,732,160.

## Environmental incidents

No environmental fines or penalties were issued to the Frieda River Project in 2008. There were four minor environmental incidents:

- Loss of ten 205L diesel drums during two flood incidents. All drums were recovered without damage and storage practices have been adjusted to reduce this risk in future.
- One minor Jet-A1 spill at the Frieda River air strip. The spill was investigated through the Frieda River Project's incident management system. The spill was contained and contaminated material excavated and stored ready for disposal off-site.
- Loss of 1.5 tonnes of drilling muds into the Frieda River when a canoe capsized. The incident was investigated through the Frieda River Project's incident management system. The drilling muds were not recovered. They are not harmful as they are naturally occurring clays (bentonite) and pose no threat to aquatic life.

- One hydraulic oil spill (less than 20 litres) from a drill rig. The spill was investigated through the Frieda River Project's incident management system. The spill was contained and contaminated material excavated and stored ready for disposal off-site.

## Climate change

Xstrata Copper is committed to managing energy use and the emission of associated greenhouse gases. We recognise that the future impacts of climate change including increased regulation, higher energy costs and physical impacts such as drought and flooding present a risk to our operations.

Further information about Xstrata's approach to climate change can be found in the Group's 2007 and 2008 Sustainability Reports and on its sustainability website [www.xstrata.com/sustainability](http://www.xstrata.com/sustainability).

In the study phases at Frieda River, numerous options for providing power to the project are being investigated. The most promising

option is using hydroelectric power which would dramatically reduce the Frieda River emissions of greenhouse gases from the potential project as compared to other options.

The key to the effective management of greenhouse gases for a project is the design of the mining and processing operation, because once commissioned, these will require high energy inputs over decades of operation. To facilitate this optimisation, all major projects are required to include a contingency cost for carbon in the financial model. This allows project development teams to optimise the greenhouse gas footprint of the project.

In 2008, direct greenhouse gas emissions (CO<sub>2</sub> equivalents) at the Frieda River Project were 34,983 tonnes. There were no indirect greenhouse gas emissions from electricity purchased from power utilities as no electricity was purchased for the Frieda River Project.

## Energy

At the Frieda River Project we use two types of energy: diesel (for power generation on-site and to drive drill rigs) and aviation fuel (for helicopters, chartered and commercial aircraft). In 2008 we consumed a total of 2525.28 gigajoules of energy and travelled around 757,000 kilometres by commercial aircraft including fly-in, fly-out travel to site.

Changing our mode of transport for some supplies – from helicopter and large barges to smaller barges and motorised canoes – has helped us to reduce our overall fuel consumption. The breakdown of our energy consumption is provided in Table 3.

Due to the topography, high rainfall and isolation there are no roads and, therefore, only two small diesel powered vehicles on-site.

## Water

The Frieda River Project is located in a high rainfall area, and we currently do not measure water used, recycled or re-used. However, our usage is well below the run of the rivers and streams from which water is extracted.



Water quality sampling



Sampling as part of the Sepik River environmental baseline studies

Table 3: 2008 Direct Energy Consumption

	Kilolitre consumption	CO <sub>2</sub> -equivalent tonnes	Gigajoules
Diesel	262.9	10147.94	709.83
Aviation turbine	692.7	23690.34	1731.75
Petrol	33.48	1145.016	83.7
Total	989.08	34983.3	2525.28

We use water in our two 80-person camps on-site, small reconnaissance camps, and for running seven diamond exploration drill rigs. The drilling operations recycle much of their water.

In 2008 we continued and expanded water quality baseline monitoring in rivers draining into the project area. The monitoring was extended to approximately 60 kilometres downstream and on other rivers in the region as a control. In late 2008, we commenced a regional scale biological survey of the Sepik River and its tributaries.

River gauging sites, automated rainfall gauges and weather stations were re-established in 2008. These sites provide valuable information that will contribute to the Environmental and Social Impact Assessment (ESIA) and engineering studies, to commence in the second half of 2009. Baseline water monitoring was expanded in 2008 to include a broader spread of sample sites and river sediment sampling.

## Biodiversity

In 2008 the scope of our environmental monitoring was broadened. Aquatic biological surveys commenced in the second half of 2008, consisting of a regional biological survey of the Sepik River and its tributaries.

The objective of the surveys is that data collected could be used as a part of the ESIA. Additionally the surveys will provide important information to the National Fisheries Authority and Department of Environment and Conservation regarding the success and impact of the fish stocking programs in the 1990s and the ecological health of the Sepik River. Terrestrial biological surveys will be scoped and planned during 2009 and undertaken during 2010.

There are no areas of protected land within the Frieda River Project leases.

The Frieda River Project holds 463 square kilometres of land under exploration licence, of which about 0.06 square kilometres was cleared for drill sites and infrastructure (camps, core yards), in 2007. There was no land disturbed during 2008.

There are no national parks, UNESCO World Heritage Convention-sites, RAMSAR Convention of Wetlands of International Importance sites or UNESCO Man and Biosphere Reserves Program sites within the Sandaun or East Sepik provinces.

No endangered plant or animal species included on the ICUN Red List have been identified in the project area.

## Emissions

Xstrata Copper is committed to managing energy use and the emission of associated greenhouse gases. Energy used during project development is generally at low levels. The operation of generators at the camp and fuel for light aircraft and drilling programs are the main energy-consuming and greenhouse gas-producing activities. Normal 'housekeeping' energy efficiency programs are encouraged at the Frieda River Project site.

The Frieda River Project does not emit ozone depleting substances, nitrous oxides or sulphur oxides.

## Waste

The Frieda River Project does not produce mining waste or hazardous waste, and its drilling muds are biodegradable. General waste is disposed to landfill and used batteries and obsolete computers are transported from site for disposal.

There were no significant spills at the Frieda River Project in 2008. Three minor spills with minimal environmental impact occurred in 2008, all of which were investigated and resolved through the Frieda River Project's incident management system.

## Transporting product, goods and materials

Goods and materials delivered to the Frieda River Project in 2008 were transported by barge and helicopter and therefore had limited impact on the environment.

There was one environmental incident in relation to the transportation of products, goods and materials to the project in 2008, involving the loss of 1.5 tonnes of drilling muds into the Frieda River from a capsized canoe, which were not recovered. The drilling muds are not harmful, consist of naturally occurring clays and pose no threat to aquatic life. There were no other environmental incidents in relation to the delivery of goods to site.



Fork-tailed catfish

### case study

# Sepik River monitoring

In November 2008 the Frieda River Project team commenced surveys into the aquatic life and water quality of the Sepik River Catchment area in Papua New Guinea.

The study is providing important environmental baseline data information about water-based life in the Sepik River Catchment for the project. In addition, the study will provide an important assessment of the Sepik following the introduction of non-native fish species as part of a stocking program in the early 1990s.

The work is being conducted in partnership with Australian environmental consulting company Hydrobiology, the National Fisheries Authority, the Department of Environment and Conservation and local communities along the Sepik River.

The surveys will be conducted in two stages. The first stage was undertaken in November and December 2008 and included the Leonard Schultz River catchment, Sepik River mainstream and off-river water bodies (ORWBs). The second stage will be conducted in January 2009 and include the Upper Sepik, May and Frieda Rivers.

The surveys have provided information on the biological condition of the Sepik River catchment, including details about the habitats, fish, small aquatic animals and water and sediment quality in the Sepik River catchment. They have also provided valuable information about the success of the fish stocking program in the early 1990s and the health of fish populations and the river system.

Frieda River Project General Manager, Dugi Wilson, said the surveys were helping the project team gain a better understanding of the project area.

"The information we obtained during these surveys is enabling us to develop a detailed understanding of the environmental conditions in the project area which is helping us to plan more effectively," Mr Wilson said.

Initial observations from the survey's first stage, confirm that non-native fish species, introduced through the PNG Government and United Nations FISHAID Project, are well established within the Sepik River mainstream, associated ORWBs and the Leonard Schultz catchment. The non-native fish species in these areas are: Java Carp; Pacu; Red Makau; and Emily's fish. Fork tailed catfish species and the Sentani Gudgeon were the most prominent native fish fauna that were caught.

In-depth statistical analysis of the collected data from the surveys, as well as historical data, is being carried out. This analysis will provide information on the current condition of fish fauna in the Sepik River. From discussions with the local villagers it is clear that both native and non-native fish form an important part of their daily subsistence.

Part of the biological investigation will determine the baseline levels of trace metals within targeted fish species. This will serve as an indicator for future reference when monitoring fish health, especially those which are caught for human consumption.

The survey data will form a useful snapshot of the Sepik against which future community and development impacts can be measured.

# GRI index

This table indicates where to locate information relating to GRI G3 indicators and principles in this report or other publications.

Indicator	Description	Level	Reference	
<b>Strategy &amp; Analysis</b>				
1.1	Statement from the most senior decision maker about the relevance of sustainability to the organisation and its strategy	✓	p.2-3	
1.2	Description of key impacts, risks, and opportunities	✓	p.4,9	
<b>Organisational Profile</b>				
2.1	Name of the organisation	✓	Inside front cover	
2.2	Primary brands, products, and/or services	✓	Inside front cover	
2.3	Operational structure of the organisation	✓	Inside front cover	
2.4	Location of organisation's headquarters	✓	Inside front cover	
2.5	Number of countries where the organisation operates, and names of countries	✓	Inside front cover	
2.6	Nature of ownership and legal form	✓	Inside front cover	
2.7	Markets served including geographic breakdown, sectors served, and types of customers/beneficiaries	n/a	Not material <sup>1</sup>	
2.8	Scale of the reporting organisation	✓	p.1	
2.9	Significant changes during the reporting periods	✓	p.6	
2.10	Awards received in the reporting period	n/a	Not material <sup>1</sup>	
<b>Report Parameters</b>				
3.1	Reporting period for information provided	✓	p.6	
3.2	Date of most recent previous report	✓	p.6	
3.3	Reporting cycle	✓	p.6	
3.4	Contact point for questions regarding the report or its contents	✓	p.7	
3.5	Process for defining report content	✓	p.7	
3.6	Boundary of the report	✓	p.6	
3.7	State any specific limitations on the scope or boundary of the report	n/a	(no specific limitations)	
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities	n/a	Not material <sup>1</sup>	
3.9	Data measurement techniques, and the basis of calculations	n/a	Did not substantially diverge from the GRI Indicator protocols	
3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and reasons	n/a	No re-statements of information	
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied	n/a	No significant changes	
3.12	Table identifying the location of the standard disclosures report	✓	p.23-24	
3.13	Policy and current practices with regard to external assurance	✓	p.7	
<b>Governance structure and management systems</b>				
4.1	Governance structure of the organisation	✓	p.10	
4.2	Indicate whether the Chair of the highest governance body is also an executive officer	n/a	Refer to Xplc 2008 Sustain. Report	
4.3	State the number of members of the highest governance body that are independent, and/or non-executive	n/a		
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body	n/a		
4.5	Linkage between compensation and the organisation's performance (including social and environmental performance)	n/a		
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided	n/a		
4.7	Process for determining the qualification and expertise of Board members on economic, environmental, and social topics	n/a		
4.8	Statements of mission or values, codes of conduct, and principles	✓		p.8
4.9	Procedures for overseeing the identification and management of economic, environmental, and social performance	✓		p.10

Indicator	Description	Level	Reference
<b>Governance structure and management systems (continued)</b>			
4.10	Processes for evaluating Board performance, particularly with respect to economic, environmental and social performance	✓	p.10
4.11	Explanation of whether and how the precautionary approach or principal is addressed by the organisation	✓	p.7
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organisation subscribes or endorses	n/a	Not material <sup>1</sup>
4.13	Memberships in associations and/or national/international advocacy organisations	✓	p.9
4.14	List of stakeholder groups engaged by the organisation	✓	p.17
4.15	Basis for identification and selection of stakeholders	✓	p.17
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	✓	p.17
4.17	Key topics and concerns raised through stakeholder engagement, and how the organisation has responded	✓	p.17
<b>Economic performance indicators</b>			
EC1	Direct economic value generated and distributed	✓	p.12
EC2	Financial implications, other risks and opportunities for the organisation's activities due to climate change	✓	p.20-21
EC3	Coverage of the organisation's defined benefit plan obligations	n/a	Not material <sup>1</sup>
EC4	Significant financial assistance received from government	✓	p.11
EC5	Range of ratios of standard entry level wage compared to local minimum wage at significant locations of operation	✓	p.14
EC6	Policies, practices and proportion of spending on locally-based suppliers at significant locations	✓	p.12
EC7	Procedures for local hiring, and proportion of senior management hired from the local community	✓	p.14
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit	✓	p.12
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts	n/a	Not material <sup>1</sup>
MM1	Identification of sites where the local economic contribution and development impact is of particular significance	✓	p.12
MM2	Value added disaggregated to country level	n/a	Not material <sup>1</sup>
<b>Environmental performance indicators</b>			
EN1	Weight of materials used by weight or volume	n/a	Not material <sup>1</sup>
EN2 (MM4)	Percentage of materials used that are recycled input materials	n/a	Not material <sup>1</sup>
EN3	Direct energy consumption by primary energy source	✓	p.21
EN4	Indirect energy consumption broken down by primary source	n/a	Not material <sup>1</sup>
EN5	Energy saved due to conservation and efficiency improvements	n/a	Not material <sup>1</sup>
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements	✓	p.21
EN7	Initiatives to reduce indirect energy consumption and reductions achieved	n/a	Not material <sup>1</sup>
EN8	Total water withdrawal by source	➔	p.21
EN9	Water sources significantly affected by withdrawal of water	n/a	No water sources significantly affected
EN10	Percentage and total volume of water recycled and reused	➔	p.21
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	✓	p.21
EN12	Description of significant impacts of activities on biodiversity in protected areas and areas of high biodiversity value	n/a	No significant impacts on biodiversity
EN13	Habitats protected or restored	n/a	Not material <sup>1</sup>
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity	✓	p.21

<sup>1</sup> As the Frieda River Project is still in the exploration phase, some of the indicators are not material to our project.

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# GRI index

Indicator	Description	Level	Reference
<b>Environmental performance indicators</b>			
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	✓	p.21
EN16	Total direct and indirect greenhouse gas emissions by weight	✓	p.21
EN17	Other relevant indirect greenhouse gas emissions by weight	n/a	Not material <sup>1</sup>
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved	→	p.21
EN19	Emissions of ozone-depleting substances by weight	✓	p.22
EN20	NOx, SOx, and other significant air emissions by type and weight	✓	p.22
EN21	Total water discharge by quality and destination	n/a	Not material <sup>1</sup>
EN22	Total weight of waste by type and disposal method	✓	p.22
EN23	Total number and volume of significant spills	✓	p.22
EN24	Weight of transported, imported, exported, or treated hazardous waste	n/a	Not material <sup>1</sup>
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by discharges of water and runoff	n/a	Not material <sup>1</sup>
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	n/a	Not material <sup>1</sup>
EN27	Percentage of products sold and their packaging materials that are reclaimed by category	n/a	Not material <sup>1</sup>
EN28	Value and number of significant fines and non-monetary sanctions for non-compliance with environmental laws and regulations	✓	p.20
EN29	Significant environmental impacts of transporting products and other goods and materials	✓	p.22
EN30	Total environmental protection expenditures and investments by type.	→	p.20
MM	Total amount of land owned, leased, and managed for production activities or extractive use; total land disturbed, total land rehabilitated	✓	p.22
MM3	The number/percentage of sites identified as requiring biodiversity management plans, and with plans in place	n/a	Not material <sup>1</sup>
MM4 (EN2)	Percentage of product(s) derived from secondary materials	n/a	Not material <sup>1</sup>
MM5	Policies for assessing the eco-efficiency and sustainability attributes of products	n/a	Not material <sup>1</sup>
MM6	Approach to management of overburden, rock, tailings, and sludges/residues	✓	Not material <sup>1</sup>
<b>Social Performance Indicators – Labour Practices and Decent Work</b>			
LA1	Total workforce by employment type, employment contract, and region	✓	p.14
LA2	Total number and rate of employee turnover by age group, gender, and region	✗	Not currently measured
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations	✓	p.14
LA4	Percentage of employees covered by collective bargaining agreements	✓	p.15
LA5	Minimum notice period(s) regarding significant operational changes	✓	p.15
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	✓	p.15
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region	✓	p.14
LA8	Education, training, counselling, prevention, and risk-control programs in place regarding serious diseases	✓	p.14,15
LA9	Health and safety topics covered in formal agreements with trade union	✓	p.15
LA10	Average hours of training per year per employee by employee category	→	p.15
LA11	Programs for skills management and lifelong learning	✓	p.15
LA12	Percentage of employees receiving regular performance and career development reviews	✓	p.15
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity	✓	p.15
LA14	Ratio of basic salary of men to women by employee category	✓	p.14

Indicator	Description	Level	Reference
<b>Labour Practices and Decent Work (continued)</b>			
MM12	Approach to identifying, preparing for, and responding to emergency situations	✓	p.14
MM13	Number of new cases of occupational disease by type. Programs to prevent occupational disease	→	p.14
<b>Social Performance Indicators – Human Rights</b>			
HR1	Percentage and total number of significant investment agreements that include human rights clauses or human rights screening	n/a	Refer to Xplc 2008 Sustain. Report
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken	→	p.11
HR3	Employee training on policies and procedures concerning aspects of human rights	✓	p.11
HR4	Total number of incidents of discrimination and actions taken	✓	p.15
HR5	Operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk	✓	p.15
HR6	Operations identified as having significant risk for incidents of child labour	✓	p.11
HR7	Operations identified as having significant risk for incidents of forced or compulsory labour	✓	p.11
HR8	Percentage of security personnel trained in policies or procedures concerning human rights	n/a	Project has no security personnel
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken	✓	p.18
MM11	Process for identifying local communities' land and customary rights, including those of indigenous peoples, and grievance mechanisms used to resolve any disputes	✓	p.18
<b>Social Performance Indicators – Society</b>			
SO1	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting	✓	p.16
SO2	Percentage and total number of business units analysed for risks related to corruption	✓	p.10
SO3	Percentage of employees trained in organisation anti-corruption policies and procedures	✓	p.10
SO4	Actions taken in response to incidents of corruption	n/a	No incidents of corruption
SO5	Public policy positions and participation in public policy development and lobbying	✓	p.11
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country	✓	p.11
SO7	Total number of legal actions for anti-competitive behaviour, anti-trust, and monopoly practices and their outcomes	n/a	Not material <sup>1</sup>
SO8	Monetary value of and total number of fines or non-monetary sanctions for non-compliance with laws/regulations	n/a	No incidents of non-compliance with laws/regulations
MM7	Description of significant incidents affecting communities during the reporting period, and grievance mechanisms used	✓	p.18
MM8	Description of programs in which the reporting organisation has been involved that addressed artisanal and small-scale mining (ASM)	n/a	Not material <sup>1</sup>
MM9	Description of resettlement policies and activities	n/a	Not material <sup>1</sup>
MM10	Number or percentage of operations with closure plans, company policy, stakeholder engagement processes, frequency of plan review, and amount and type of financial provisions for closure	✓	p.18
<b>Social Performance Indicators – Product Responsibility</b>			
PR1		n/a	Not material <sup>1</sup> (no product produced)
PR2		n/a	
PR3		n/a	
PR4		n/a	
PR5		n/a	
PR6		n/a	
PR7		n/a	
PR8		n/a	
PR9		n/a	

<sup>1</sup> As the Frieda River Project is still in the exploration phase, some of the indicators are not material to our project.

✓ fully reported → partially reported ✗ not reported n/a = not applicable

# Glossary

## **AIDS**

Acquired immune deficiency syndrome.

## **Biodiversity**

An abbreviation of “biological diversity” and means the variability among living organisms from all sources, including land-based and aquatic ecosystems, and the ecosystems of which they are part.

## **Business Principles**

Xstrata’s Statement of Business Principles sets out the ethical framework for the way we work globally.

## **Closure plan**

A formal document detailing a costed conceptual outline of how the operation will be closed, taking into account the options available to deal with prevailing social and environmental issues.

## **CO<sub>2</sub>-e**

Carbon dioxide equivalent is a standard metric by which greenhouse gases other than carbon dioxide are converted to CO<sub>2</sub> equivalence to facilitate comparisons and quantification.

## **Commodity business**

Xstrata’s activities are structured into global commodity businesses organised along commodity lines.

## **Community complaints and enquiries**

Any issue raised by a member of the community relating to the operation in question, whether resolved or not. This can relate to an enquiry or other incident or non-compliance.

## **Cu**

Copper

## **DISR**

Disabling Injury Severity Rate. The number of disabling injuries per million hours worked.

## **EIS**

Environmental Impact Statement

## **EITI – Extractive Industries**

### **Transparency Initiative**

The Extractive Industries Transparency Initiative (EITI) aims to increase transparency in transactions between governments and companies in extractive industries.

## **EMS**

Environmental Management System(s).

## **ESIA**

Environmental and Social Impact Assessment.

## **Fatality**

A death resulting from an occupational injury or illness.

## **GJ**

Gigajoules (1 GJ = 1,000,000,000 joules).

## **Global Compact**

The UN Global Compact is a voluntary corporate responsibility initiative to advance ten universal principles in the areas of human rights, labour, the environment and anti-corruption.

## **GHGs**

Greenhouse gases.

## **GRI**

Global Reporting Initiative a multi-stakeholder, international process whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines to assist corporations in reporting on the economic, environmental, and social performance of their operations.

## **ha**

Hectares (1 ha = 10,000 square metres)

## **HIV**

Human immunodeficiency virus.

## **HSEC**

Health, safety, environment and community.

## **ICMM**

International Council on Mining and Metals.

## **IUCN**

The International Union for the Conservation of Nature and Natural Resources, also known as the ‘World Conservation Union’.

## **kg**

Kilogram (1 kg = 1,000 grams).

## **kL**

Kilolitre (1 kL = 1,000 litres).

## **km**

Kilometre (1 km = 1,000 metres).

## **Land disturbed**

Land disturbed by operational activities.

## **Land rehabilitated**

Land disturbed by operational activities and then reshaped and revegetated.

## **LTI**

Lost Time Injury an occupational injury or illness that results in days away from work.

## **LTI<sub>FR</sub>**

Lost Time Injury Frequency Rate = LTI x 1,000,000/hours worked.

## **Materiality**

Disclosing all information of significant concern to stakeholders for assessing our economic, environmental, and social performance.

## **m<sup>3</sup>**

Cubic metres.

## **Megalitre (ML)**

1 megalitre = 1,000,000 litres or 1,000 kilolitres.

## **Mt**

Megatonnes (1 Mt = 1,000,000 tonnes)

## **MTI**

Medical Treatment Injuries an occupational injury/illness which is not classified as an LTI or RWI, but which results in loss of consciousness or medical treatment after first aid.

## **NGOs**

Non-governmental organisations.

## **NO<sub>x</sub>**

Oxides of nitrogen (nitric oxide and nitrogen dioxide).

## **Occupational illness**

Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment.

## **PER review**

Performance and career development review.

## **PNG**

Papua New Guinea.

## **PPE**

Personal protective equipment.

## **Recycled water**

Recycled/re-used water is water:

- that has been used at least once in a process
- within the operation or at another operation
- within the organisation; and that would otherwise be part of a waste stream; and
- if not re-used, would require the input of raw water.

## **REDD**

Reduced Emissions from Deforestation and Degradation.

## **Red List**

IUCN Red List of Threatened Species.

## **RWI**

Restricted Work Injury an occupational injury or illness that results in a person being physically or mentally unable to perform all or any part of his/her normal assignment.

## **SD (previously HSEC)**

Sustainable Development.

## **Tailings and tailings dams**

The fine fraction of waste rock remaining after the mining and on-site processing of mineral resources. Tailings are piped into engineered impoundments known as tailings dams.

## **TRI**

Total Recordable Injuries is a measure that includes all injuries other than first aid, i.e.:

- Lost time injuries (including fatalities);
- Restricted work injuries; and
- Medical treatment injuries.

## **TRIFR**

Total Recordable Injury Frequency Rate = (LTI + RWI + MTI) x 1,000,000/hours worked.

## **UN**

United Nations

## **Waste water discharged**

Total volume of effluent discharged to: surface water for irrigation; third parties for treatment; and rivers or oceans



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