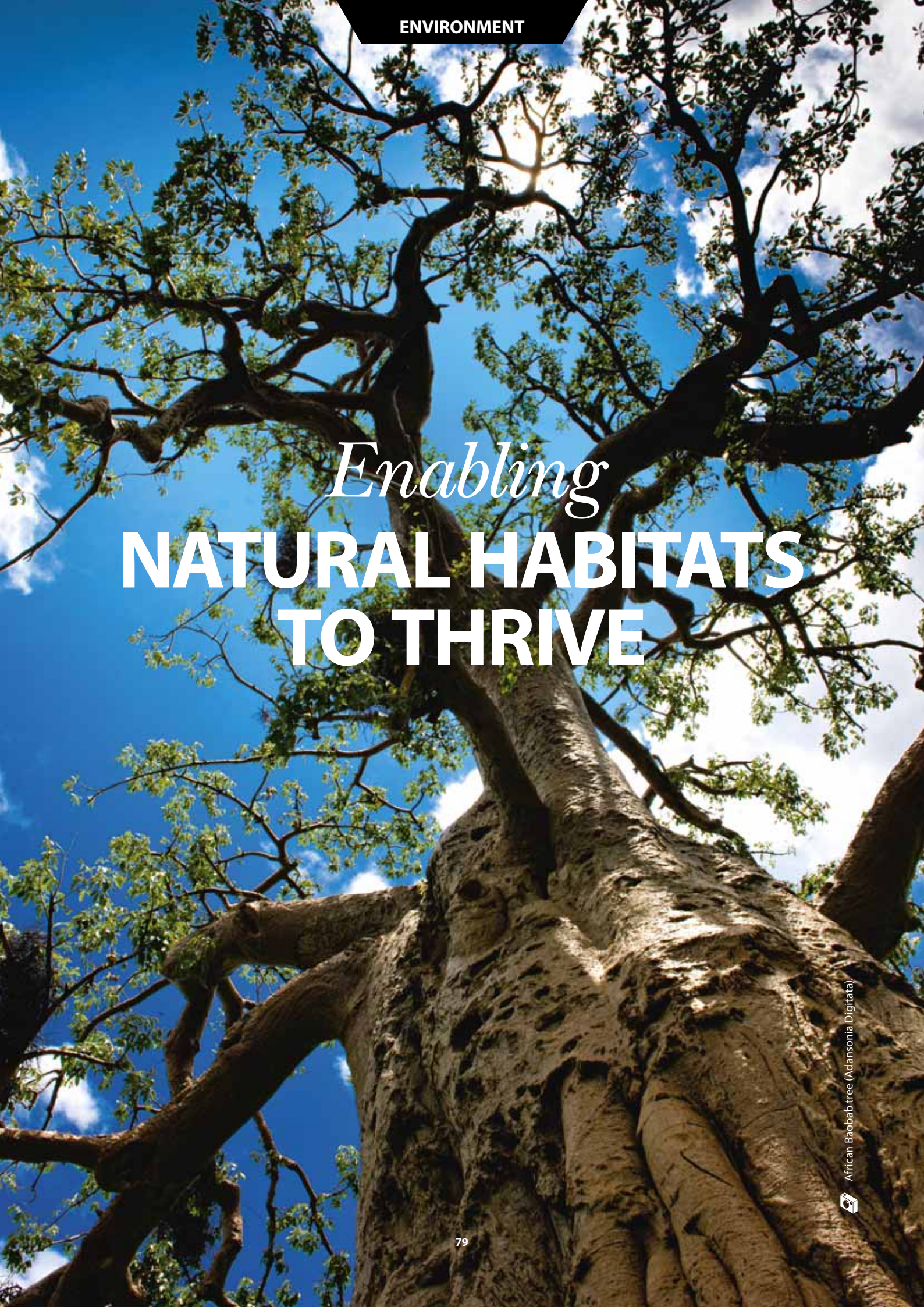
Enabling NATURAL HABITATS TO THRIVE



African Baobab tree (Adansonia Digitata)

The
SUSTAINABLE MANAGEMENT
of the natural environment
IS KEY TO THE FUTURE DEVELOPMENT AND PROSPERITY
of the countries in which we operate.

GOOD ENVIRONMENTAL STEWARDSHIP IS ESSENTIAL TO OUR BUSINESS.
We take an holistic view of environmental management and understand the interconnected nature of biodiversity, energy and climate change, water and waste management issues. We forge partnerships with local communities, governments and NGOs so that we effectively address the individual environmental challenges in each of our locations.

Environment

We recognise that the living environment is as much a source of shared value as diamonds.

The Family of Companies places a high premium on contributing positively, wherever possible, to the natural capital of all the countries in which we operate. This is why our mining footprint is considerably smaller than the total area we have for biodiversity conservation.

Good environmental stewardship involves responding proactively to address and manage environmental issues through innovation. It also involves building competence and consistency across the Family of Companies as well as working in partnership with government and NGOs, to address issues of local and national significance.

At the core of our management approach is our commitment to lifecycle planning at all of our operations. This requires that we endeavour to understand, avoid, minimise, and then mitigate the specific environmental impacts of every stage in the mining lifecycle, with a view to ensuring effective rehabilitation by closure.

"Private sector involvement is crucial to protecting South Africa's scarce water resources. We work in collaboration with key businesses like De Beers, who are ready to provide leadership to harness private sector engagement to better manage and protect our water resources."

Dr. Mao Amis
World Wildlife Fund Programme Manager, Integrated Catchment Management

HIGHLIGHTS

- In 2010, The Diamond Route won the prestigious Nedbank Green Mining Award in the Sustainability category (p92-93). We also held our first Diamond Route Research Conference where 26 leading academics presented papers on research carried out within the Diamond Route
- We focused on our commitment to no net loss of biodiversity and held an international workshop to debate the practicalities and implications in striving for no net loss of biodiversity for current and prospective operations
- Our use of reused and recycled water at our southern African mines remained relatively constant at 50% of our total freshwater footprint (2009*: 53%). In 2010, we used 38.09 million m^3 of new (potable and non-potable) water across all of our operations/facilities (2009*: 23.31 million m^3). This equates to a 63% year-on-year increase, mainly due to the increase in production from the low production year in the economic downturn of 2008/2009 (p84)
- In 2010, our direct and indirect energy consumption amounted to 11.24 million Gigajoules (GJ) (2009*: 7.82 million GJ), a 43.8% increase year-on-year (p86)
- Total carbon emissions rose 31.5% to 1.46 million tonnes in 2010 (2009*: 1.11 million tonnes) due to a 34% increase in production (p86)

Data note 15: Previous years' water and energy use data* has been changed slightly from the data reported in our 2009 Report to Society. This restatement takes into account improvements in data reporting and is more accurate.

Environment risks

In this chapter we report on Environment risks identified as most relevant to the De Beers Family of Companies and our stakeholders. We identify and categorise our sustainability risks through ongoing engagement with stakeholders and our internal management processes (see p11-17).

5.1 ***Water and energy security in a changing climate****
Risk: Our mines in Africa are mostly located in water-stressed environments. Shifting rainfall patterns are expected to present a challenge to water access for our operations and local communities, presenting both operational risks and potentially undermining our social licence to operate.

5.2 ***Lifecycle planning****
Risk: There are environmental risks associated with all stages of the mining lifecycle. We seek to first avoid, then minimise and finally mitigate the impacts of our activities when planning, designing and carrying out exploration, mining and related activities. This is motivated both by local regulation and our goal to achieve operations and closure to the highest environmental standards.

5.3 ***Promotion and maintenance of biodiversity and ecosystems****
Risk: Many of our operations are in sensitive or biologically diverse environments. Managing biodiversity is rarely straightforward and requires that we take a sophisticated, ecosystems-based approach.

5.4 *Maintaining environmental standards*
Risk: We are committed to aligning our environmental policies, systems, programmes, resourcing and training approach to those of the world's leading mining companies. This requires long term commitment and sustained effort.

5.5 *Respect for protected areas, biodiversity hotspots or World Heritage Sites*
Risk: We respect legally designated Protected Areas and World Heritage Sites. We aim to minimise the disturbance of ecosystems through responsible planning and biodiversity stewardship – from exploration through to the post-mining phase – in order to mitigate current and future risks from environmental impacts, litigation and reputational damage.

5.6 *Management of waste and pollution prevention*
Risk: While diamond mining itself does not require the use of hazardous substances, as it is mostly a physical process, we are focused on ensuring that all operations and facilities manage effluents, wastes, emissions and hazardous substances to prevent pollution.

KEY: Long term Medium term Short term

* Our management approach to the risks that are asterisked and marked in bold are reported on in this Report, and summarised in its counterpart Summary Review.

Water and energy security in a changing climate

Risk: Our mines in Africa are mostly located in water-stressed environments. Shifting rainfall patterns are expected to present a challenge to water access for our operations and local communities, presenting both operational risks and potentially undermining our social licence to operate.

Climate change and its impacts present a risk to the sustainability of our business. The greatest risks are potential water scarcity, extreme weather events and rising temperatures.

Around 95% of our rough diamond production comes from arid or semi-arid regions in southern Africa. Reduced rainfall and water availability could affect our production capacity and costs, and pose a risk to relations with communities with whom we share water resources.

In Canada, rising temperatures can disrupt the seasonal ice roads used to supply our remote Snap Lake and Victor Mines. This leads to increased reliance on airfreight and its associated energy requirements and costs.

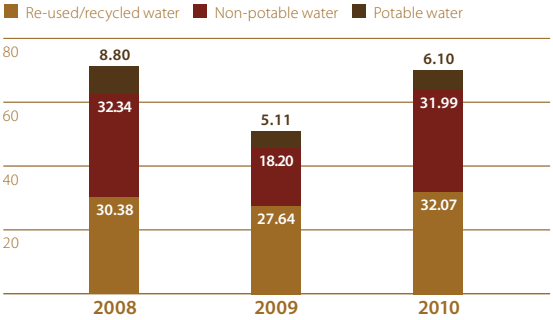
Managing risk and impacts

Our approach to managing climate and water-related risks and our commitment to making progressive reductions in carbon emissions, energy and water use, as well as conserving biodiversity, are directed by a number of policies and initiatives:

- Our Environment Policy;
- Our six Environmental Standards, which ensure effective implementation of our Environment Policy, particularly those for climate change, water and biodiversity;
- Continued ISO 14001 certification at all of our operations;
- De Beers Family of Companies Principles; and
- Membership of the United Nations Global Compact and UN CEO Water Mandate.

Fig. 25

Fresh water use, 2008-2010 (million m^3)



Data note 16: Previous years' water use data has been changed slightly from the data reported in our 2009 Report to Society. This restatement takes into account improvements in data reporting and is more accurate.

Efficient and sustainable water use

Water is a shared resource. It is essential for our mines to operate and is essential for the communities and biodiversity in the region of our mines. Managing water sustainably is critical to our efforts to deliver value while maintaining our local licence to operate.

Water Standard

Our Water Standard guides our approach and commits us to:

- Manage water supply and demand across all operations; and
- Ensure that all operations minimise and mitigate the pollution of water resources.

The Water Standard defines the requirements for all aspects of water management at our operations. Site Water Steering Committees ensure that our water strategies are aligned with legislative requirements and best practice in addition to providing leadership on water conservation and demand management.

Stakeholder question:

Can you tell us more about your water strategy? How do you link up the various aspects of water as a social as well as an environmental issue?

Overall, we are trying to take an integrated approach to tackling sustainability issues. We do this via Principles Committee, a management committee which is responsible for ensuring we live up to our Principles.

Water takes a high priority within our business because it is a critical issue for us and the regions within which we work. It is strongly linked to climate change adaptation and management of biodiversity such as removal of alien vegetation which can then result in improved water supply. From an operations point of view, there are trade-offs between water efficiency and energy efficiency that we are grappling with in the southern African context, and we aim to strike a balance between the two. A number of steps have already been taken in line with our Water Standard to drive performance on water efficiency. We aim to continue to decrease our water use per unit of production while being cognisant of any consequent increase in energy requirements and our associated carbon footprint. Managing water resources responsibly also entails balancing the water needs of local communities with the broader socio-economic benefits that come from mining diamonds to create shared national wealth.

We are working with others to find long term environmental and socio-economic solutions and have taken a broad approach by complying with all six elements of the UN CEO Water Mandate to which we are a signatory. Through the Worldwide Fund for Nature in South Africa we are involved in integrated catchment management in the Limpopo river basin. In Botswana, we are working with the Government of the Republic of Botswana and the United Nations Development Programme to promote long term integrated water resource planning through Botswana. In Namibia we are involved in various bodies for the management of the Orange River, an international river that forms the southern border of our mining licence areas.

Central Tailings Plant, Kimberley

Reducing our water consumption

In 2010, we used 38.09 million m^3 of new (potable and non-potable) water across all of our operations/facilities (2009*: 23.31 million m^3). This equates to an increase of 63% year-on-year and is mainly due to the increase in production from the low production year in the economic downturn of 2008/2009.

The use of recycled process water at our southern African mines remained relatively constant at 50% (2009*: 53%) of our total fresh water use. We also used 20.19 million m^3 of sea water (2009*: 21.76 million m^3) at our west coast and marine mining operations in southern Africa.

New technologies

All mines continued to investigate new technologies to improve water efficiency. These include investigating:

- Use of saline water for ore treatment;
- Installation of facilities to capture storm water from urban areas to reduce groundwater use; and
- Electro-kinetic dewatering, which uses electric fields to extract the last remnants of water from thickened slime or slurry.[17]

Major land-based operations

Debswana has the largest water footprint in the Family of Companies. In 2010, it accounted for 47% of our total new water usage. Through ambitious target setting in 2003, Debswana reduced water by 35% by 2008. This was largely as a result of improved slimes recycling and thickening, increased use of rainfall and storm water runoff, and reduced wastage. These efforts continue.

DBCM accounts for 31% of our new water use. DBCM has set a water reduction target of 15% by 2015, using a 2007 base year. At Voorspoed Mine, the operation continues to operate a largely closed water circuit, reusing most of its treatment process water from on-site dams. At Kimberley Mines, a paste and thickened tailings system has reduced water consumption considerably. The system has been reported on and presented at various international conferences.

Marine mining in Namibia and South Africa

De Beers Marine vessels use sea water in the treatment process and onboard domestic fresh water requirements are obtained from desalination plants. This does not always meet the demand, so additional water is transported from shore. Although this requirement is relatively low, the fresh water is drawn from the closest coastal town, Port Nolloth, which is in a water scarce region of South Africa. To limit water use from the town, in August 2010 targets were established to drive efficiencies in onboard water-making to minimise delivery of fresh water from Port Nolloth. Since implementation of the target there has already been a 25% improvement in the average generation of fresh water per day, thereby reducing the amount of water needed from Port Nolloth.

Energy efficiency and emissions reductions

We are committed to being a responsible energy user and to combating climate change. We plan to achieve this by:

- Promoting the efficient and sustainable use of energy through the principles of reduction, recovery, reuse and recycling (see case study, p86); and
- Reducing carbon emissions and participating in climate change initiatives.

Our approach to energy management involves setting energy targets, implementing energy efficiency measures, and stringently assessing the energy requirements of capital projects. Targets are set at operational level taking into account the specific production performance indicators, such as tonnes of ore treated.

Energy security in southern Africa

In southern Africa, energy security is an increasing risk as demand for electricity often exceeds supply. With new generating capacity some way off, energy costs have been increasing and average increases of up to 25% are expected in the coming years. These cost increases underline the importance of enhancing our energy security through improved efficiency and the diversification of electricity supplies. This includes investing in alternative energy sources such as wind and solar.

Botswana

In Botswana, a deficit in electricity supply is projected between 2009 and 2013 while the state energy company brings more generating capacity online. As a result, Debswana, on behalf of Botswana Power Corporation (BPC), has installed 90 Mw of dual-fuel (diesel or gas) generating capacity at the Orapa Mine. In the longer term, BPC plans to replace the diesel feed to the plant with gas from gas fields to the north of the mine. This is expected to cost a total of about P850 million (US$121.8 million).

Data note 16: Previous year's water use data* has been changed slightly from the data reported in our 2009 Report to Society. This restatement takes into account improvements in data reporting and is more accurate.

[17] Dewatering and other paste thickening research is a central part of our water conservation strategy. While this dewatering results in increased water efficiency, it does have increased energy costs.

Case study:

Towards integrated catchment management in the Limpopo region

The Limpopo river basin is one of southern Africa's cross-boundary river basins, straddling four countries (South Africa, Botswana, Zimbabwe and Mozambique). The basin is a source of water for more than 14 million people and water management challenges present a major risk to all water users within the river basin.

To address this risk, and improve water security for all users, in 2010 DBCM entered into a three-year agreement with the Worldwide Fund for Nature (WWF) South Africa to understand:

- Our Venetia operation and its location within a broader and dynamic socio-ecological landscape as it pertains to water risks;
- How our operation and other user needs in the priority catchments are potentially at risk in a changing world; and
- The responses required in terms of strategic and collaborative investments to reduce the shared risk and improve the resilience of water security.

WWF has partnered with the Council for Scientific and Industrial Research (CSIR) and the Peace Parks Foundation (PPF) to deliver on some of the key outputs of the project. The anticipated conservation outcomes from this initiative include capacitating water management institutions, protecting critical fresh water ecosystems in the catchment and empowering communities to engage in the effective management of water resources in the basin.

The programme was presented at the World Economic Forum/UN CEO Water Mandate conference in Cape Town in November 2010 and received praise for its emphasis on addressing corporate water risk at the catchment level and its focus on shared risk.

"In the late 1980s when Venetia Mine was planned and developed, we placed great emphasis on minimising our impact on the source of our water. Now, 20 years later, we are involved in this project over and above our mine water management programme because we fully recognise the value of water as a shared resource, and the need for sound stewardship of water for the benefit of all."

Martin Preece
General Manager, Venetia Mine, DBCM.

A *The Venetia Plant*
B *Martin Preece, Venetia Mine General Manager*

Energy consumption and efficiency measures

In 2010, our direct and indirect energy consumption amounted to 11.24 million Gigajoules (GJ) (2009*: 7.82 million GJ), a 43.8% increase year-on-year. This increase is due to increased production across the Family of Companies in the face of the economic recovery and increased demand for diamonds.

Direct energy from fuel use (including diesel) accounted for 67% of our energy profile (2009*: 60.3%). Indirect energy in the form of electricity accounted for the remaining 33% (2009*: 39.7%).

Renewable energy

In South Africa, DBCM has initiated a wind power project in Namaqualand and a solar photovoltaic energy project in the Kimberley region. Both projects will be implemented by third party companies on land made available by DBCM. This will not only promote the use of renewable energy in South Africa, but also create job opportunities in impoverished areas. In Canada, tests with wind power have shown the potential for significant reductions in fuel costs.

Carbon emissions

Our total CO_2-e (carbon dioxide equivalent) emissions amounted to 1.46 million tonnes in 2010, a 31.5% increase on 2009 (2009*: 1.11 million tonnes). The increase compares favourably with a 34% increase in production.

Almost 62% of these emissions are associated with the electricity we purchase from national providers. These indirect emissions amounted to 0.91 million tonnes (2009*: 0.76 million tonnes). Direct emissions from fuel use (mainly diesel) amounted to 0.56 million tonnes (2009*: 0.35 million tonnes).

Other air emissions

Our sulphur emissions relate almost exclusively to energy use and changes in emission levels are directly linked to our energy consumption. SO_2 (sulphur dioxide) emissions from liquid fuels use amounted to 610 tonnes in 2010 (2009*: 241 tonnes). Marine gas oil contributed 76.3% of SO_2 emissions, (2009: 51%), due to increased marine mining activity and the greater sulphurous nature of marine fuel compared to other fuels.

Water and energy efficiency objectives for 2011

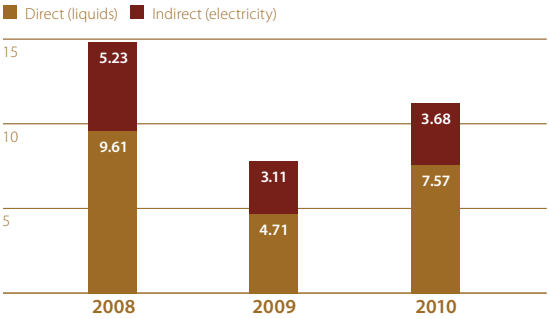
In order to improve our water and energy efficiency performance in 2011, we plan to:

- Implement Integrated Water Management Plans for all mining operations as per the Water Standard;
- Set and achieve appropriate water targets for all operations in water-stressed areas;
- Adhere to UN CEO Water Mandate commitments;
- Set and achieve appropriate energy targets for all mining operations as per Climate Change Standard; and
- Reduce carbon emissions driven by energy targets, with reduction dependent on energy mix.

Data note 17: Previous years' energy use data* has been changed slightly from the data reported in our 2009 Report to Society. This restatement takes into account improvements in data reporting and is more accurate.

Fig. 26

Direct and indirect energy use, 2008-2010 (million GJ)



Data note 18: Previous years' energy use data has been changed slightly from the data reported in our 2009 Report to Society. This restatement takes into account improvements in data reporting and is more accurate.

Fig. 27

Our direct (liquid fuels) energy use profile, 2010

Case study:

Energy efficiency in South Africa

In South Africa, DBCM is a signatory to South Africa's Energy Efficiency Accord. This sets a target to reduce energy consumption by 15% by 2015 against a 2005 baseline. Work so far has reduced energy use by approximately 6%. This has involved installing energy efficient light bulbs, ensuring optimal running of large compressors, and using smaller underground ventilation fans and high efficiency motors. Further initiatives underway to meet this target include:

- Installation of solar water heaters in mine-owned domestic buildings;
- Installation of high-efficiency motors on a replacement basis;
- A pilot project at Venetia Mine on new approaches to electricity load shedding, demand control and tariff optimisation using software tools;
- Diesel energy monitoring to assess the effect of road conditions, idling time and optimum loading on fuel consumption;
- Plant process management to avoid operating equipment when there is no feed material; and
- Ongoing awareness campaigns for all employees to use electricity, fuel and water wisely.

Lifecycle planning

Risk: There are environmental risks associated with all stages of the mining lifecycle. We seek first to avoid, then minimise, and finally mitigate the impacts of our activities when planning, designing and carrying out exploration, mining and related activities. This is motivated both by local regulation and our goal to achieve operations and closure to the highest environmental standards.

Mining activities can have significant impacts on the environment so we have committed to adopt the Mitigation Hierarchy at every stage of the mining lifecycle first to avoid, then minimise and finally mitigate the impacts of our activities to result in a minimal residual impact.

Our Lifecycle Planning Standard outlines the two desired outcomes of our lifecycle planning processes:

- All phases of the mining lifecycle (planning, implementation and management) should contribute towards a positive environmental and social legacy; and
- All operations should have environmental management systems and resources to address environmental risks from operational life through to closure.

Exploration and acquisitions

De Beers Exploration is committed to maintaining the wellbeing of the communities and environments in which we operate. In doing so, we are guided by our Exploration Environment, Community, Occupational Hygiene, Health and Safety (ECOHS) Guidelines.

A risk assessment process is conducted in the early stages of exploration. This includes an assessment of the environment within which exploration will occur, as well as closure planning. When exploration reaches advanced stages, a social and environmental baseline study is also undertaken.

Projects

Projects are required to complete a range of assessments, depending on their stage in the mining lifecycle (see Table 6).

A *Winter water testing, Snap Lake Mine*
B *Environmental Technology laboratory, Snap Lake Mine*

Table 6: Lifecycle stages and activities, 2010

Phase	Activity	Objective	2010 Action/Example
Conceptual	Environmental and social screening	• To establish if the proposed project has the potential to generate significant or unacceptable environmental or social impacts	• Namdeb Southern Deflation Deposit
Pre-feasibility	Scoping	• To gather and evaluate information and undertake specialist studies for the Environmental and Social Impact Assessment (ESIA)	• Namdeb Orange River Mines Extension Project • DBCM Venetia Underground Project
Feasibility	Environmental and Social Impact Assessment and Environmental and Social Management Plan (ESMP) or Environmental Management Plan (EMP)	• To identify, qualify and quantify project impacts on the biophysical, socio-economic, heritage, aesthetic and cultural environments. • To document and detail future monitoring and management requirements outlined in the ESIA and develop closure plans in line with the life of mine	• De Beers Canada Gahcho Kué Mine project in the Northwest Territories – 11,000 page Environmental Impact Statement (EIS) submitted • Namaqualand Living Edge of Africa Project (LEAP) on alternative land uses • Namdeb Elizabeth Bay Optimisation
Construction or commissioning		• To ensure inclusion of all requirements of the EMP for operational phase for smooth transition to operational phase	
Operations	Environmental Management Systems (EMS)	• To ensure ISO 14001-compliant EMS are in place at all diamond mining operations to guide the management of our operational environmental impacts and promote continual improvement in environmental performance and implementation of concurrent rehabilitation	• Morupule Coal Mine achieved ISO 14001 certification • Significant improvements to gaps in the EMS at Venetia, Orapa and Jwaneng Mines. • Improved environmental incident reporting system established
Closure/Disposal	Closure plans/liabilities	• To implement final closure plan once production ceases or ensure adequate financial provision for outstanding environmental liabilities on sale of a mine to other operators	• Sale due diligences for Jagersfontein Mine dumps, Finsch and Namaqualand Mines

Operations

Environmental Management Systems

ISO 14001 compliant Environmental Management Systems (EMS) are in place at all of our mining operations and a range of other facilities. These are developed during the construction/commissioning phase, with certification taking place during the operational phase.

Progress in 2010

During 2010, our Morupule Coal Mine in Botswana received ISO 14001 certification. We also made some significant improvements to our EMS at Venetia Mine in South Africa and also Orapa and Jwaneng in Botswana to rectify non-conformances that were identified through our EMS audits. All of our site EMS are now functioning appropriately.

Pollution prevention

All our operations are committed to minimising pollution and responsibly managing waste. Our Environmental Standard for pollution prevention and waste management commits us to:

- Replace high-risk hazardous substances with non-hazardous or less hazardous alternatives; and
- Manage effluents, wastes, emissions and hazardous substances to prevent pollution.

Managing Hydrofluoric Acid risks

The use and storage of Hydrofluoric Acid (HF) has been identified as an important operational safety, health and environmental risk. HF is used to dissolve kimberlite in the recovery of microdiamonds. It is also used in the diamond-cleaning process.

An HF Peer Group was established in 2009 to focus on ongoing risk reduction and to provide a forum for sharing information and management strategies. A Peer Group Charter was established and the group made some progress in 2010. All areas that handle HF have representatives on the peer group and an intranet portal has been developed for the sharing of information.

Environmental incidents

No Level 5 (Catastrophic) or Level 4 (Major) environmental incidents were reported during 2010 (see Fig. 28).

During the year, we implemented a new, more detailed environmental incident reporting system that captures not only a broader spread of incident severity categories but also improves separation by type. The majority of environmental incidents are pollution-related and to a lesser extent, linked to resource wastage and biodiversity or archaeological impacts.

Implementing the new system required:

- Training of staff;
- Group-wide changes to the reporting system for capturing incidents within our EMS; and
- Changes to our intranet-based reporting software.

Fig. 28

Environmental incidents, 2010

Case study:

Gahcho Kué, Canada

At the end of 2010, De Beers Canada submitted an 11,000 page Environmental Impact Statement (EIS) for the proposed Gahcho Kué open-pit mine at Kennady Lake, 280km north of Yellowknife in the Northwest Territories. This EIS will now be used as the basis for an Environmental Impact Assessment that will be carried out by the Mackenzie Environmental Impact Review Board in 2011.

The proposed mine will extract around 4.5 million carats of diamonds annually from three kimberlite pipes over an 11-year mining period. Gahcho Kué is a joint venture between De Beers Canada (51%) and Mountain Province Diamonds (49%).

A *Environmental monitoring, Northwest Territories*
B *Aerial view of Gahcho Kué*

A *Physical rehabilitation, Namaqualand*
B *Ecological rehabilitation, Namibian coast*

Closure and disposal

Our focus on responsible closure, rehabilitation, and disposal of assets is motivated both by local regulation and our goal to operate to the highest environmental standards.

Our Environmental Standard on Lifecycle Planning requires all operations to establish closure plans at the right level of resolution for the remaining life of mine. The Standard also requires concurrent or progressive rehabilitation throughout the life of mine, which is essential to ensuring lifetime closure costs are minimised.

All mining sites are different and, at a minimum, closure planning covers rehabilitation of the natural landscape, but closure planning often includes options for economic diversification, biodiversity conservation, or continued mine-related activity through selling mines to other operators.

For our newer mines or those in planning stages, closure is considered during mine planning. With older mines, closure and rehabilitation programmes are retrospectively applied. A number of mines also use the Anglo American Closure Toolkit as a framework for developing realistic closure plans.

Progress in 2010

In 2010, a significant amount of work focused on updating closure plans and reviewing closure costs for existing mines. A full review of closure costs and trends in costs over time was also undertaken.

The most substantive biophysical closure planning has taken place at DBCM and Namdeb operations because these are mostly older mines within our portfolio. A new tool was developed for Venetia Mine to track actions and apply clear accountabilities associated costs related to concurrent rehabilitation requirements and rehabilitation for the end of life of mine.

At Namaqualand mines, where production has ceased, extensive earthmoving and ecological rehabilitation continues to address the rehabilitation footprint from decades of mining.

Debswana will make improvements to various aspects of mine closure plans in 2011. The plans, originally developed in 2004/2005, have been benchmarked against the Anglo American Closure Toolkit to highlight areas for improvement.

Our Environmental Standard on Lifecycle Planning requires all operations to establish closure plans at the right level of resolution for the remaining life of mine. The Standard also requires concurrent or progressive rehabilitation throughout the life of mine, which is essential to ensuring lifetime closure costs are minimised.

Rehabilitation

Rehabilitation is an ongoing process at all mines, but is especially relevant at Namdeb's land-based operations, and DBCM's Namaqualand Mine, which have large footprints from many decades of mining.

Namdeb

In 2010, rehabilitation plans continued to move forward at Namdeb. The plans seek to address the legacy of 100 years of mining, much of which took place prior to any form of environmental management. The plan addresses four key issues:

- Pollution;
- Infrastructure;
- Landscape; and
- Biodiversity.

The rehabilitation plan makes provision for the reshaping of landforms on 24% of Namdeb's footprint, as well as active revegetation of 7% of its footprint.

Progress towards the proclamation of the closed mining town of Oranjemund continued in 2010 and it is expected that Oranjemund will be proclaimed as a municipal town in 2011 (see p72).

Namaqualand

Extensive rehabilitation has been undertaken in the Namaqualand region of South Africa over the past few years with guidance from an independent ecological expert.

Alternative land uses are being considered in place of full rehabilitation. These include tourism and mariculture projects, wind power generation and the expansion of oyster and abalone farming.

It is also hoped that the two mining towns of Kleinzee and Koingaas will be proclaimed. This will allow them to become open municipal towns, making housing and facilities available to the public and increasing opportunities for alternative economic development.

Marine

Large-scale marine diamond mining has been taking place for over two decades in Namibia and for a few years in South Africa. Offshore environmental monitoring programmes have been in place over this time.

In late 2010, we conducted a review of our monitoring programmes with internal specialists and external marine biologists that have experience in assessing the impacts of marine mining. Key outcomes of the review were:

- In the marine environment active rehabilitation is not possible, so activities need to focus on monitoring the direct (sediment removal) and indirect (plume) impacts of mining and the associated recovery of sediments and marine life;
- Unlike land-based mining and rehabilitation, in the marine environment there is continued indirect influence from mining in adjacent areas;
- With a high level of natural variability in the mining areas the review found it difficult to draw firm conclusions about recovery;
- There is a significant historical dataset but more information on recovery may be gained by evaluating the full-time series of data as a whole;

The review demonstrated that after mining there is:

- Natural infilling of the mined areas which creates a habitat for recolonisation by marine life; and
- Marine life exists in previously mined areas but the community structure is different; and
- There is much data that should be published in the scientific literature to contribute to biodiversity knowledge.

Lifecycle planning objectives for 2011

As a result of the review we have developed a set of objectives and associated actions for 2011:

- Full implementation of the Lifecycle Planning Standard covering all aspects from exploration through projects, operations and closure;
- Maintaining ISO 14001 certified EMS at all operations that demonstrate continual improvement; and
- Ensuring integrated closure plans are in place at all mining operations at the right level of resolution.

A *Local flora, Orapa Mine*
B *Environmental monitoring at rehabilitated dump site, Venetia Mine*

Promotion and maintenance of biodiversity and ecosystems

Risk: Many of our operations are in sensitive or biologically diverse environments. Managing biodiversity is rarely straightforward and requires that we take a sophisticated, ecosystems-based approach.

Biodiversity is arguably our most significant environmental issue. Much of our mining footprint covers sensitive, biologically diverse environments. As a result, we place particular focus on biodiversity in our environmental planning and impact management. Risks are identified during exploration and included in all Environmental Impact Assessments (EIA) and Environmental Management Plans (EMP) during project planning and operation phases.

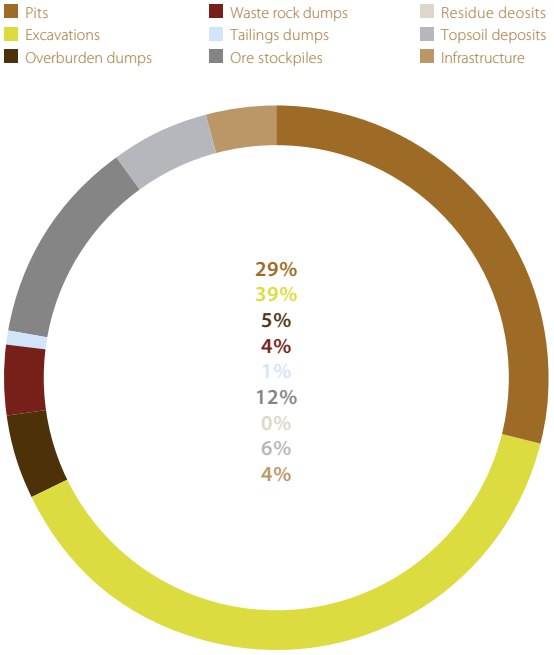
Our mining footprint

Our land-based mining licences cover 939,593 hectares (ha), only 39,000 ha of which (4.2%) is disturbed by our actual mining footprint. We have set aside over 231,112 ha, or one quarter, of our licence area for conservation, an area almost six times larger than the land area disturbed by our mining activities.

Land set aside for conservation includes properties that form part of the Diamond Route, an initiative that promotes research opportunities, biodiversity conservation and community initiatives on properties belonging to the Oppenheimer family and De Beers (see p92-93).

Fig. 29

Our mining footprint, 2010 (ha)



Biodiversity Action Plans

During 2010, we continued a focus on the development of Biodiversity Action Plans (BAP) across all of our operations. BAP are used to develop a coordinated approach to biodiversity stewardship, supported by management objectives and actions.

The BAP provide a clear framework for defining actions and monitoring and reviewing impacts that affect biodiversity. They provide opportunities to improve communication and cooperation with stakeholders, including NGOs, and strengthen our strategic contribution towards biodiversity conservation.

Biodiversity Overlap Assessment

Our annual Biodiversity Overlap Assessment (BOA) assesses the high-level risks of our activities on biodiversity. It identifies the extent to which our operating areas overlap with protected areas, key biodiversity areas and World Heritage Sites.

Biodiversity is arguably our most significant environmental issue. Much of our mining footprint covers sensitive, biologically diverse environments. As a result, we place particular focus on biodiversity in our environmental planning and impact management.

We first completed BOA for our sites in 2009 using up-to-date biodiversity information from the Integrated Biodiversity Assessment Tool for Business (IBAT), which was provided by a partnership of NGOs including BirdLife International, Conservation International and the International Union for Conservation of Nature (IUCN). In 2010, we repeated the BOA, but as there were no changes to the IBAT database, we only mapped changes to our ground holdings, some of which have been reduced. The results were the same as the original overlay process, showing that we do not mine in any known IUCN Category I–IV protected areas.

Our Venetia Mine does have water abstraction points and a water pipeline that runs through a section of the Mapungubwe National Park and World Heritage Cultural Landscape. The EIA and infrastructure developments for Venetia, however, were completed before the proclamation of the National Park and World Heritage Site.

Some exploration licences overlap with portions of known IUCN Category I–IV Protected Areas in South Africa, Namibia, Angola and India. Due either to the protected status of the land or the location of sites of interest from an exploration perspective, prospecting activities are not conducted on these overlap areas.

www.iucn.org
www.ibatforbusiness.org
www.birdlife.org
www.conservation.org
www.unep-wcmc.org

Biodiversity objectives for 2011

We plan to focus on the following activities in 2011:

- Finalising BAPs for all mining operations and implementing these through integration with our existing EMS;
- Assessing the status with respect to no net loss of biodiversity at three existing operations; and
- Integrating no net loss of biodiversity as an objective for new projects.

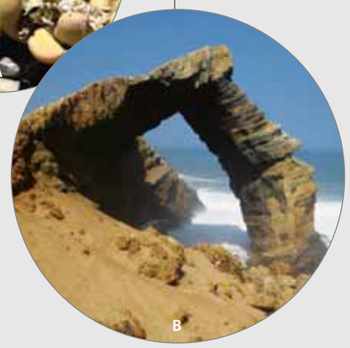
Promoting biodiversity

Biodiversity sits right at the heart of De Beers' approach to environmental stewardship.

As early as 1888, De Beers started to regulate the properties it owned around the iconic Kimberley diamond mine, with a view to protecting the indigenous fauna and flora in the area. Our current efforts build on this long history of conservation in southern Africa.

A partnership approach is central to our efforts to protect and promote biodiversity both in and beyond our areas of operation. We work alongside local and international NGOs and communities to support environmental education, scientific research and sustainable tourism initiatives.


A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Sperrgebiet National Park, Namibia
Namdeb's mining operations sit within the Sperrgebiet National Park, covering just 5% of the total area. An arid biodiversity hotspot, the Park has a diverse range of flora and fauna, birds and wildlife.


C

Marine mining, south-west African Coast
The only company in the world to conduct offshore diamond mining, De Beers contributes to scientific understand of marine life and biodiversity along the west coast of southern Africa.

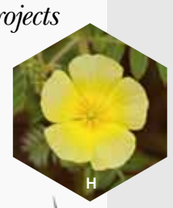
CASE STUDY:
The Diamond Route
The Diamond Route is a cross-provincial, multi-site tourism route that covers nine sites across southern Africa. A partnership initiative between De Beers, E Oppenheimer & Son and Ponahalo Holdings, it aims to promote local economic development through tourism and education and promote biodiversity through active conservation and vital scientific research. In 2010, the Diamond Route was winner of the overall sustainability category of the Nedbank Green Mining Awards.


D

261 *permanent jobs created*

30 *organisations taking part*

120 *research projects conducted*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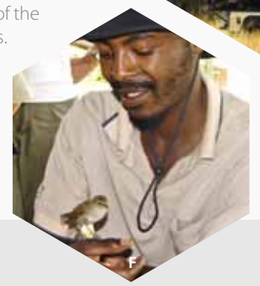
THE DIAMOND ROUTE


E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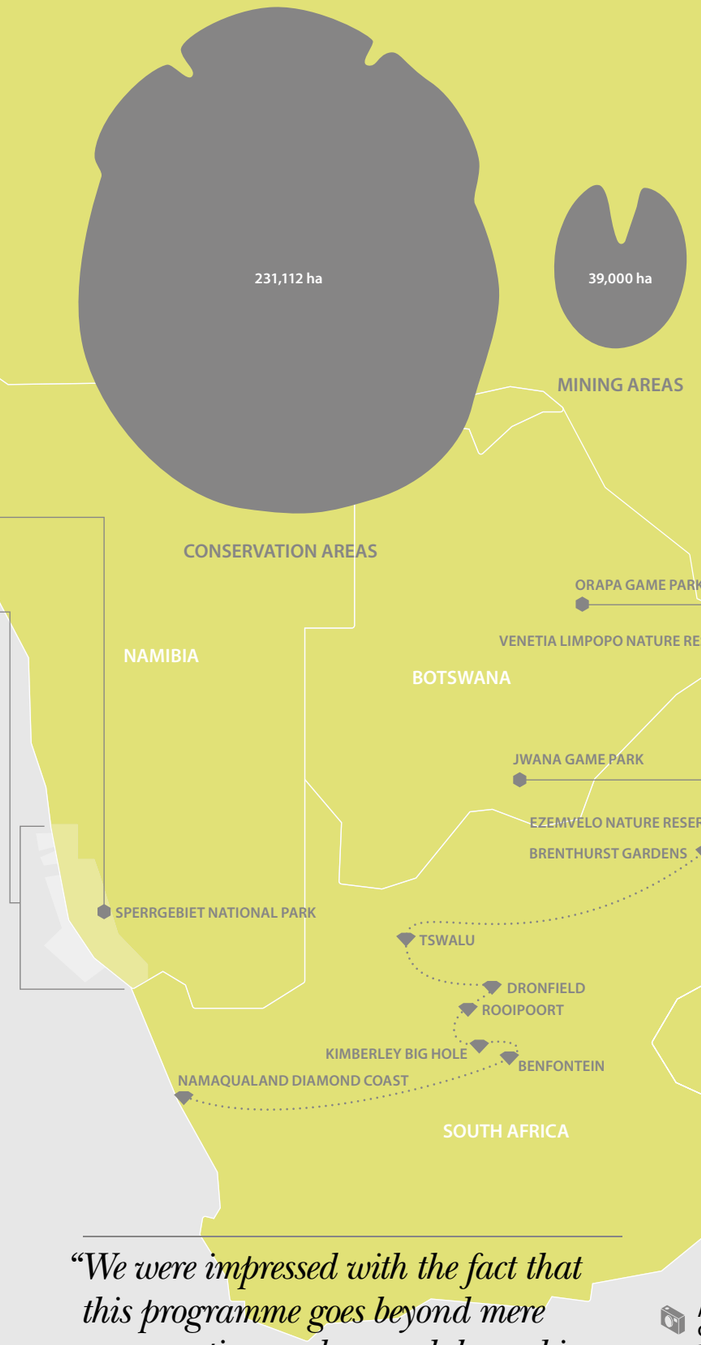
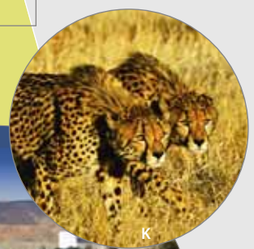
Our mining footprint



Orapa Game Park, Botswana
Originally a cattle-grazing and recreational area, the 22,000 hectare park is now home to diverse wildlife.


I


J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L

Jwana Game Park, Botswana
The 17,000 hectare Game Park, located within the boundaries of the Jwaneng Mining lease, hosts a field unit for Cheetah Conservation Botswana.

"We were impressed with the fact that this programme goes beyond mere conservation and research by making the sites accessible to all, for the benefit of all – thus providing an excellent example of sustainability."

Nedbank Green Mining Awards, 2010, talking about the Diamond Route

A, B *Indigenous flora, and Bogenfels (Elbow Rock), a landmark in the Sperrgebiet.*
C *Sea anemone.*
D *Vehicles touring the Diamond Route.*
E *Meerkats.*
F *A Bird Guide at Brenthurst Gardens.*
G *Elephant at the Venetia Limpopo Nature Reserve.*
H *Yellow acacia thorn flower, indigenous to northern South Africa.*
I, J *Kori bustard and giraffe at Orapa Game Park.*
K, L *Cheetahs, eland and springbok at Jwana Game Park.*