

HEALTH, SAFETY, ENVIRONMENT & COMMUNITY AWARDS

2004 RESULTS



RECOGNITION

EMPLOYEE HSEC AWARDS

The BHP Billiton Employee HSEC Awards recognise those employees and their teams who openly embody the values expressed in our Charter and go beyond what is required in their day-to-day jobs to care for their fellow employees, the community and the environment.

Awards are presented in the four categories of Health, Safety, Environment and Community, together with an award for Individual Excellence, the recipient of which is personally selected by the Chair of the Judging Panel, the Rt Hon Sir Ninian Stephen (former Governor General of Australia). Each category of nominations is assessed by a separate judging panel, comprising one representative from the Company and four experts from the non-government, government, industry and academic sectors.

This year, more than 200 nominations were received from around the world. The judges selected a shortlist of finalists in each category. From these, the recipients of Excellence, Highly Commended and Merit awards were chosen. In recognition of their initiative, each Excellence award and Highly Commended award recipient has been presented with a specially designed sculpture, and each Merit award recipient has received a certificate. The finalists each nominated a charity or not-for-profit organisation to share in their award. These organisations have received a donation of US\$7500 (Excellence Award), US\$3750 (Highly Commended) or US\$1500 (Merit). The judges this year also awarded an Honorable Mention for Fundraising, in recognition of an outstanding series of campaigns to raise funds for local community projects. The recipient's nominated charity received a donation of US\$1500.

All the recipients are to be congratulated for the high standard of their contributions.

We wish to thank the judges who participated in the assessment of entries and acknowledge their contribution to the awards process.

For details on award recipients refer to the following sections.

[Individual Award](#)

[Health Awards](#)

[Safety Awards](#)

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[Community Awards](#)

EXCELLENCE AWARD

Personally selected by the Chair of the Judging Panel, The Rt Hon Sir Ninian Stephen

Charlie DeLuca

Diamonds & Specialty Products, EKATI Diamond Mine, Northwest Territories, Canada

Charlie DeLuca is Asset Supply Manager at EKATI Diamond Mine. The operation has a Social Economic Agreement with the Government of the Northwest Territories, which specifies targets for regional and indigenous employment and purchasing and a requirement to support the establishment of sustainable aboriginal businesses.

Charlie has played the lead role in driving EKATI's contractors to meet the employment targets and exceed the purchasing targets while ensuring cost-effective procurement, and he has an outstanding record in establishing and supporting Aboriginal businesses. For example, he helped bring together the two largest indigenous groups in the region to form a company and share in business opportunities, a significant undertaking as these groups traditionally had not worked together. The company gained contracts to haul ore from one of the surface mines to the process plant and maintain the haul road, and has since formed a joint venture with a Canadian company and secured underground mining work.

When Charlie began initiating local business opportunities, there was no infrastructure or goods or service-related businesses within the indigenous communities. He worked closely with Aboriginal groups to help them understand how they could contribute to the success of EKATI, which in turn would help them to take advantage of employment and business opportunities offered by diamond mining.

EXCELLENCE AWARD

Dr Salvador Janne (team representative)

Energy Coal, Cerrejón Coal Company, La Guajira, Colombia

Salvador represents the team that since 1985 has designed and implemented a comprehensive occupational and industrial hygiene program at Cerrejón's remote sites, for the benefit of more than 8000 employees and contractors.

Initiatives have included structuring the methodology and application of medical and hygiene follow-up through the identification, formation and follow-up of homogenous risk groups; designing a computerised program for the cross-management of medical and hygiene data; and developing and administering programs and systems for, among other things, occupational risks epidemiologic surveillance (including 3000 yearly risk-based medical exams and hygienic risk evaluations), hazardous materials handling, drug and alcohol prevention and rehabilitation, lumbar injury prevention, HIV/AIDS prevention, labour absenteeism control, promoting healthy lifestyles, office ergonomics, emergency support, and the prevention and management of epidemic outbreaks.

Many of these programs are considered best practice and have been adopted as national occupational health models.

HIGHLY COMMENDED

José Flávio Alves (team representative)

Aluminium, Mineração Rio do Norte (MRN), Oriximiná, Brazil

José works with a team from Fundação Esperança, a national philanthropic institution, on Project Quilombo, which assists around 2000 people living in remote villages along the Trombetas River, a tributary of the Amazon River. These communities have few medical and nursing facilities.

The project, which commenced in 1997 and is fully funded by MRN, promotes basic concepts of personal hygiene and preventative health care in order to reduce the incidence of disease.

Health care officers and local volunteers receive training from Fundação Esperança medical teams and visit the communities monthly to conduct consultations, laboratory examinations, vaccinations, home visits and community seminars on disease prevention. People suffering severe illnesses are cared for at MRN's Porto Trombetas Hospital. Studies based on a range of medical indicators show the basic health care needs of the communities are now being met.

Humera Malik (team representative)

Petroleum, Zamzama Gas Project, Islamabad, Pakistan

Humera and the community development team are implementing a program titled 'Pathways to Participation and Empowerment through Community Health Care' after a multi-stakeholder consultative process revealed that limited access to basic health care facilities, especially for mothers and children, was the major concern of local communities. There is a high rate of infant and maternal mortality in the area.

Support has been provided to local NGOs to manage the program, launched in 2001, which has provided infrastructure support to the local rural hospital, set up community health clinics, conducted training for medical practitioners and community health workers, set up community health houses, established a health forum and formed village health committees. As a result the program is receiving strong support and ownership by the community and government.

Humera and her team have managed the planning and design of the project and facilitated consultation between the NGOs, the local communities and government organisations.

Ben van Wyk (team representative)

Energy Coal, Khutala Colliery, Mpumalanga, South Africa

Ben and a team of engineering and occupational health personnel developed a solution for enclosing the cab of a load haul dumper, reducing the operator's exposure to noise, dust and fumes. The standard vehicle has an open cab.

The challenge was to enclose the cab without restricting the visibility of the operator. A door and frames were fitted, allowing windows to be installed. To facilitate exit from the cab, particularly if an accident occurs, the door is split to enable the top half to be opened independently. A further safety enhancement was to fit a limit switch that automatically applies the brakes when the engine is running and the door is opened.

To further minimise transmission noise (the major source of cabin noise), gaps in the cab body were sealed with acoustic insulation foam. Noise in the cab has been reduced significantly, from 92 dB to 75 dB. The team is now looking at enclosing the cabs of other mining machinery at the colliery.

MERIT**Colin Glover (team representative)**

Petroleum, Liverpool Bay Oil and Gas Project, Wales, United Kingdom

Colin Glover and Gary Walker designed and implemented a secure, easy-to-use electronic medical database for use on the offshore Douglas platform, so that medical logs could be supplied monthly for auditing by ISOS, the Company's medical assistance provider.

Supplying data from existing card indexes by post or fax was considered to be both insecure and impractical. The challenge was to create a database capable of storing and reporting on patient histories and records while meeting the legal requirements of medical confidentiality during transfer of data. The database also had to systematically record available medical stock levels by linking with a medical stores database.

The database is now in use on the platform and the improved data collection and storage means reports are more accessible as well as being accurate, legible and auditable. The system has been accepted by ISOS as a secure means of transporting the medical logs.

Julie Kershaw (team representative)

Carbon Steel Materials, BHP Billiton Iron Ore – Nelson Point, Western Australia

Julie and a team of occupational health, HR and rail operations personnel developed the 'Fit for Life' program to improve the health and wellbeing of the Company's locomotive drivers.

Since its inception in 2001, the program has delivered revised medical standards and testing for drivers that set the benchmark as best practice within the rail industry. An on-call system has been introduced for injury management, advice, treatment and follow-up. An onsite rehabilitation room has been set up and employees are assisted with diet and exercise programs. Rail crew are much more aware of how diet, exercise and lifestyle affect their health and their ability to work safely. The Classified Injury Frequency Rate has reduced and return-to-work rates have significantly improved.

The program is not only helping to ensure that rail crew are fit to complete their jobs safely but is also helping to improve their overall health and wellbeing.

Kellie Wallis (team representative)

Carbon Steel Materials, Goonyella Riverside Mine, Queensland, Australia

Kellie and a team of operations and safety personnel developed the 'Working Smarter' program, aimed at preventing soft tissue injuries and enhancing the general wellbeing of employees. Most injuries at the mine are sprains and strains, with underlying causes including poor health and fitness, workplace design and work methods.

The program has included ergonomic assessments, an ergonomic risk register, manual task guides to avoid musculoskeletal disorders, and personal wellness programs. There have also been a Health & Wellbeing Expo, newsletter articles, workshops, and ongoing research and feedback.

Workgroups are encouraged to research workplace risks and design solutions, with the result that many practical measures have been implemented to address safety, health and ergonomic issues. There have been improvements in personal wellness aspects such as exercise levels and eating habits and the incidence of sprains and strains is decreasing.

Mfundo Mngadi (team representative)

Aluminium, Hillside Aluminium Smelter, Kwa-Zulu Natal, South Africa

Mfundo and the HSE team developed a display to raise awareness of occupational asthma and the importance of wearing personal protective equipment (PPE) and to show the link between smoking and asthma.

Research was undertaken into asthma and the health and economic costs of tobacco addiction. The display highlighted the difference between two families; one with a working father who has quit smoking and wears PPE, and one who ignores the advice and warnings. The displays were staffed and supplemented with posters, videos, leaflets and a dump station where smokers could dispose of their cigarettes.

After seeing the displays, around 30 employees and numerous other site visitors quit smoking. Awareness of occupational asthma has risen and the use of PPE has improved. After being on show at the smelter, the displays were donated to a non-profit exhibition centre where the message can reach the broader community.

Liz Sanderson (team representative)

Energy Coal, Mt Arthur Coal, New South Wales, Australia

Liz and a cross-sectional group of employees implemented a Fatigue Risk Management Project. Recognising that fatigue in the workplace is a potential health hazard, the team analysed fatigue risks and reviewed research on causes, effects and outcomes of fatigue and the processes used to manage fatigue.

A site-specific program to manage the associated risks was then developed, including Fatigue Risk Management Guidelines, which cover hours of work, rest breaks, task rotation and other workplace initiatives to manage and prevent fatigue. The guidelines are now in standard use at the site.

A video titled 'Managing Fatigue – A Shared Responsibility' was also produced as an educational tool and workshops have been conducted with employees and their families, focusing on lifestyle issues, fitness for work and individual responsibilities within the workplace. Surveys show there is now greater employee understanding of the risks of fatigue.

Phillip Sinel (team representative)

Petroleum, Griffin Venture FPSO, Western Australia

The Australia Operated Asset HSE Team in conjunction with the Griffin Venture Caterers developed a Food Allergen Management System for Griffin Venture, BHP Billiton Petroleum's floating production, storage and offloading facility.

The initiative followed a potentially fatal health incident that occurred as a result of exposure to a food allergen. In Australia, about 20 people die each year from an allergic reaction. There is no cure and strict avoidance of food containing the allergen is critical. A risk assessment led by Sam Lee (HSE Adviser) and Brian Smith (Chief Caterer) was conducted with support from GV crew. Simple control strategies were identified to manage food allergens, without restricting the wide range of foods available.

Measures include identifying crew allergies through the induction process, providing details of crew allergies to catering staff, highlighting allergen-containing foods on menus and buffets, updating medical support, providing awareness training and conducting regular reviews — all of which help reduce the risk of an allergy-related fatality.

EXCELLENCE AWARD

Lydia van der Merwe (team representative)

Energy Coal, Rietspruit Plant, Mpumalanga, South Africa

Lydia and a project team developed a solution to significant safety risks associated with managing high volumes of trucks delivering coal to the plant, removing tarpaulins from the loads and weighing the truckloads at the weighbridge.

Trucks were arriving at a rate of one every 3.5 minutes over an 18-hour workday. Tarpaulin removal was a hazardous exercise and, at the weighbridge, the norm was for the driver to leave the engine running and disembark from the truck to communicate with the clerk or for the clerk to approach the vehicle, both of which created safety risks.

The solution was to introduce one-way traffic flow controlled by stop signs. Each truck passes through a well-illuminated stand where trained handlers safely remove the tarpaulin in minutes. The truck then proceeds to an automated weighbridge where weighing takes 30 seconds. As the driver does not need to leave the cab, he is in control of the vehicle the entire time. At last count, approximately 40 000 loads had been delivered and weighed without incident since these measures were introduced.

HIGHLY COMMENDED

Ronald Otte (team representative)

Aluminium, Hillside Aluminium, Kwa-Zulu Natal, South Africa

Following a fatality in 2002 that revealed the poor safety performance of contractor companies, the Hillside Aluminium team developed a contractor safety management program. The first step in this program was to carry out an HSEC audit of each company, which led to the rationalising of contractors to more manageable numbers. Safety induction has been improved, job safety analysis introduced and risk assessment training is provided.

Mentoring has been a vital factor, with each Superintendent being allocated several contractors to counsel, and regular sessions are held at the contractor's premises. A monthly safety meeting is also held on site with all contractors to discuss safety incidents, best practices and key lessons learned. The mentoring sessions and safety meetings are complemented by monthly "team" breakfasts to build relationships and discuss issues in an informal atmosphere. Hillside's behavioural safety program is also now being implemented at contractor companies.

Since the contractor safety management program was introduced, the contractor Classified Frequency Injury Rate has decreased significantly, emphasizing Hillside Aluminium's vision to be the world's leading Aluminium Smelter.

Garry Shields

Carbon Steel Materials, Goonyella Riverside Mine, Queensland, Australia

Garry reduced a high-risk task in the coal processing area to a low-risk task by identifying an opportunity to replace the heavy steel rollers under conveyor belts with lighter poly rollers and by designing and fabricating a removable return support frame for safer and easier roller replacement. Previously, to change a roller, it was necessary for four crew members to secure a work platform under the belt. Harnesses were required to be worn and attached to a suitable anchor point. The crew then had to manually handle a 44-kilogram steel roller above their heads.

Each poly roller, sourced by Gary after extensive research, weighs just 7 kilograms. The retractable supporting frame simply slides out sideways onto the catwalk for roller changeover. There is no need for the crew to work under the conveyor belt, move outside the safety rails or attach to fall restraints. Further reduction in risk are provided through less manual handling of the steel rollers and work platform, less reliance on lower level controls (i.e., personal protective equipment) and less exposure time to hazards.

The average time for completing the task has been cut from 40 minutes to 5 minutes, with significantly reduced risk of injury or fall. Additional benefits are that the poly rollers have minimal abrasive effect on the belts, are not subject to rust corrosion and require minimal maintenance.

Jonathan Deegan (team representative)

Petroleum, Worldwide Drilling, Houston Texas, USA

Jonathan and the Worldwide Drilling (WWD) team developed an effective procedure to communicate and implement the Company's Fatal Risk Control Protocols. WWD is essentially a project management group using the services of a large number of contractor companies to drill and complete oil and gas wells.

The challenge was to gain commitment from the contractor companies around the world to implement the protocols. Initiatives have included developing three additional protocols addressing fatal risks associated with drilling (confined space entry, dropped objects and lifting and handling), undertaking a gap analysis of drilling sites, producing a WWD Fatal Risk Control document specifically for implementation by contractors, developing computer-based training modules for rig crews, and publishing a Rig Book that converts the protocols into words and pictures that can be easily understood by any rig crew.

The protocols have now been fully implemented and the team has followed up with reviews of all rig sites to identify any issues that need addressing.

MERIT

Tony Kneuker (team representative)

Aluminium, Worsley Alumina, Western Australia

Tony and a project team developed the Worsley Contractor HSEC Management Framework to facilitate contractor companies taking responsibility for managing the safety of their employees. Contractors previously had no formal method of managing or assessing their safety performance, posing a high risk.

The framework sets out a total approach, including pre-qualifying contractors, issuing a kit outlining responsibilities and measurement, establishing key safety performance indicators, appointing a single point of accountability, defining essential safety activities, completing monthly safety performance reports, auditing implementation of the process and performing contract close-out audits.

The framework was launched in November 2003 with an extensive information campaign to guide and help contractors through the implementation and reporting process. Early results indicate increased contractor focus on safety, greater self-management by contractors, a better standard of work and improved safety performance.

Dr Jorge Medina (team representative)

Base Metals, Tintaya Copper Mine, Arequipa, Peru

Jorge and a team of HSE, social development and marketing personnel developed a program to improve safety in the transportation of hazardous materials from the Port of Matarani to Tintaya, a journey of 340 kilometres. Based on a risk analysis that identified various hazards, specifically in the transportation of sulphuric acid, the program has several key features.

Only transport companies with high safety standards are selected to tender. These standards apply to equipment condition, maintenance programs and fleet supervision during travel. In conjunction with local authorities, extensive emergency response training is provided to the drivers and also to the communities along the route that could be exposed to a safety incident. Standardised travel routes, travel times, travel speeds and rest breaks have been specified and a dedicated safety adviser coordinates the safety measures.

In the two years since the program commenced, there has not been a single safety incident or claim associated with the handling, transport or storage of sulphuric acid.

Edward Routledge (team representative)

Diamonds and Specialty Products, Global Exploration, British Columbia, Canada

Edward and the HSEC team devised a system for the tracking and analysis of safety incidents, as a basis for measuring the 'health' of the Exploration group's HSEC behaviours and for developing improvement strategies.

The easy-to-use system is based on the reporting of all incidents and near misses and these are linked to classified injury numbers to achieve a key performance indicator. Incidents are classified into principal risks and used to identify trends. By revealing trends in incident types, certain activities can be modified to avoid more serious outcomes and further improve safety performance. The incidents are categorised according to whether they were errors of omission, commission or violation. By plotting these on axes indicating failure type, the performance of the global group across the three exploration regions can be measured.

The system focuses on behaviours by providing indicators to recognise genuine error, conflicts of pressure and attempts to avoid or circumvent safe working procedures. In each instance, a different management approach will be necessary to remedy deficiencies, ranging from additional training, resolution of workplace priorities or conflicts, up to and including a disciplinary process taking account of the 'just culture' process.

Julie MacDonald (team representative)

Carbon Steel Materials, Goonyella Riverside Mine, Queensland, Australia

Julie and a project team developed a quick-fill hose system for fuelling heavy mine vehicles. The project arose in response to a workgroup concern about manual handling of the 20-kilogram fuelling hose. The previous procedure involved lifting the heavy hose to the fuel nozzle and holding it in a static position for approximately ten minutes. The manual handling risk was so high that management and the employees banned the system.

The innovative solution, developed by contracts supervisor Kelvin Robinson, eliminates the need for employees to bear the weight of the hose during fuelling. At the fuel farm point, the fuel hose is suspended on an extending arm. Spring-loaded safety chains take all the weight of the hose and fuel. The chains slide along the extended arm, allowing accurate positioning of the hose to the fuelling nozzle for quick and efficient refuelling. A clamp prevents uncontrolled movement by the arm when not in use.

The design is the first of its kind in the industry and is considered best practice for fuelling trucks.

David Trenberth (team representative)

Carbon Steel Materials, Goonyella Riverside Mine, Queensland, Australia

David and a project team delivered a user-friendly and safe tyre management approach to the haulage truck tyres at the mine. While the key objective was to ensure safe running tyres, the potential for reducing tyre loss and downtime from tyres exceeding their design limitations became apparent.

Moving heavy loads over extended distances puts tremendous stress on tyres. The solution involves identifying the correct tyre for the job, effectively managing the tyre from date of fitment through to scrapping, understanding and controlling the risks from an operational perspective, and maintaining good relationships with the tyre manufacturers. A key innovation developed by the team was the enhancement of the modular Tonne Kilometres Per Hour (TKPH) tool, which delivers a graphic, user-friendly display of all tyres in service, on a range of different truck brands. The production dispatcher and tyre coordinator can proactively observe the tyre safety level at all times and a system of alerts prompts appropriate required action when the need arises.

The ten-month project has delivered a technically superior method of managing tyre safety on site to a level where potential tyre loss through exceeding design safety limitations has been practically eliminated. The solution also allows the trucks and tyres to perform at higher production levels while staying within pre-set safety parameters.

Ben van Wyk (team representative)

Energy Coal, Khutala Colliery, Mpumalanga, South Africa

Ben and a project team managed the redesign of the colliery's underground personnel carriers in line with the Company's Fatal Risk Control Protocol on light vehicles. The safety belts in these vehicles can become inoperable due to build-up of dirt in the catches, creating safety risks in the event of a collision or sudden stop.

Modifications to the passenger compartment include a safer seating configuration and the installation of passenger restraining devices. These are sprung tubular metal bars that the passengers, once seated, lower to a comfortable position across their laps.

The carrier has also been designed to double as an ambulance if a worker is injured underground. A first aid kit and other emergency equipment is stored in containers under the seats and a stretcher compartment has been fitted under the vehicle. The rear panel and centre seat backrest are hinged to enable the stretcher to lie horizontally in the passenger compartment. Attendants can sit alongside and attend to the injured person being transported.

EXCELLENCE AWARD

Stephen Grocott (formerly Aluminium now Diamond's & Specialty Products) & Phil Johnston (team representatives)

Aluminium, Worsley Alumina, Western Australia

Steve, Phil and a project team developed the Worsley Air Emissions Impact Assessment (AEIA) process. The project grew from a desire to reduce emissions, improve emissions management, assess the impact of emissions on the workforce and to fully engage key stakeholders.

The key was to adopt a collaborative approach. A specialist panel of national experts was assembled to assist the project team. A coordination group comprising senior representatives from the relevant government departments was established to guide the process and a community liaison committee was also formed. The process has been endorsed by an independent peer review panel of internationally eminent experts.

As a result of the AEIA, Worsley has demonstrated excellence in emissions management and assessment, developed a high level of trust from regulators (to the extent that Worsley is now cited as an example of how to management emissions), earned increasing confidence from the local community and gained a higher level of respect and trust from its workforce.

HIGHLY COMMENDED

Claire Reid (team representative)

Aluminium, Boddington Bauxite Mine, Western Australia

Claire and the water conservation team set out in June 2002 'to demonstrate a measurable reduction in water consumption per unit production within 12 months'. By June 2003, fresh water consumption had dropped from 34.5 litres per unit production to 31.06 litres. By June 2004, consumption had decreased further to 30.8 litres. This is a 10.7 per cent reduction (2002 baseline).

The water-saving initiatives included identifying and stopping leakage from a water storage dam; changing vehicle washdown practices to increase water re-use; modifying mine planning during summer months to increase common sector hauls; improving spray directions and volume control on water carts; purchasing additional flow meters and enhancing monitoring; commencing area water consumption reporting; and conducting a campaign to provide employees and community members with advice and tools to reduce their water consumption at home and in gardens.

As well as the significant reduction in water consumption, there has been an increase in water re-use and employees are now more aware of water issues and targets.

ENVIRONMENT

Gary Brassington (team representative)

Carbon Steel Materials, Illawarra Coal, New South Wales, Australia

Gary and a project team managed the mitigation and remediation of mining impacts on a local environmental feature during underground mining operations. Marhnyes Waterhole, located on a main river, is a popular recreational spot and has historical and cultural significance to the community.

In the planning stage for Area Five at West Cliff Colliery it was predicted that underground mining would crack the rock base, leading to drying of the pools. Several innovations were devised and implemented, including a 'stress relieving slot' to minimise damage to the rock bar, the application of 'pattern grouting' to prevent water loss from the creek beds and aesthetic repairs to the rock bar using cement mixed with natural oxides. There was also extensive monitoring of the effectiveness of the slot and of subsidence levels, river water levels, groundwater levels and ecological change to determine the impact of mining on the river.

The techniques were successful in enabling mining to occur beneath the waterhole while preserving the environmental and community values of the area.

Ricardo Sarmento (team representative)

Aluminium, Mineração Rio do Norte, Para, Brazil

Ricardo and a project team managed a waste recovery project with significant environmental benefits. The mine, which is surrounded by environmentally sensitive areas, has a bauxite storage yard and three driers.

The yard's drainage system and the driers together produce a mud of water and ore fines, which previously would be further processed into clean water and waste. The waste would be transported to a discharge area in trucks that had to be specially sealed to stop mud from being spilled onto the road. When full, each discharge area would be reforested.

The team developed a filter plant that processes the waste into a saleable product of clean water and bauxite in a form that enables it to be transported by conveyor belt and loaded onto ships. Excess water from the process can be released to the river without further treatment. The key is the application of technology that produces uncontaminated filtrate with a low moisture content that makes it easy to handle. As a result, a costly waste handling process has been replaced by an income-producing process with no environmental impact.

MERIT

Antônio Barros (team representative)

Aluminium, Mineração Rio do Norte (MRN), Para, Brazil

Antônio and the environmental control team, with support from Brazilian scientific institutions, have developed an innovative process for the reforestation of bauxite tailing ponds.

The residue from bauxite beneficiation thickens in a tank from which it is transferred to the ponds where, after 18 months, it is thick enough for revegetation to begin. A methodology has been established for inoculating legumes with selected strains of bacteria that, when sown in the flooded residue, accelerate drying of the residue, aggregating the substrate and creating a network of macro and micro pores that improve the soil's physical condition. Seedlings can then be planted in cracks that appear in the dried-out ground.

The project has been under way for 12 years, during which time the team has been developing and improving hydro-seeding and planting methods. Tailing ponds where planting began several years ago have been successfully reforested. The process has been published in scientific magazines and is being made available to Brazilian and international communities.

Gordon Bryant (team representative)

Petroleum, Worldwide Drilling Group, Louisiana, USA

Gordon and a project team devised an improved process for cleaning tanks on ships that carry supplies to drilling rigs and production platforms. One of the materials carried in large volumes is drilling fluid, comprised of water or a synthetic oil that is mixed with solid materials, chemicals and other additives into a viscous liquid known as 'mud'. The tanks become encrusted with heavy layers of particulate matter from the mud and require frequent cleaning.

Past cleaning methods involved manual scraping of the tanks then hosing, which generated huge volumes of cleaning water wastes that required transportation to commercial disposal facilities. Such cleaning processes also require personnel to be inside tanks for many hours at a time. The new process, which is automated, utilises high-pressure spray nozzles mounted in the tanks and filtration equipment that removes solid particles from the cleaning water, allowing it to be reused. The new process also reduces the risk to personnel by requiring them to work inside the tanks for less than half an hour per tank.

The innovation greatly reduces environmental impacts. The previous method would generate 5000 barrels of wastewater. The new process utilises 450 barrels of water, which can be re-used many times.

Eduardo Arenas Cortes (team representative)

Base Metals, Minera Escondida, Second Region, Chile

Eduardo and a project team organised the recycling of used plastic irrigation piping into pellets for the production of plastic bags. At the mine, approximately 17 000 metres of sprinkler pipes are used in the irrigation of dumps in the oxide leaching process. These pipes are changed every four days.

In the past, the used pipes were taken to a waste dump and buried. Realising the pipes contain the same raw material (HDPE) as that used in plastic bags, the team conceived the recycling concept. The pipes are now collected and transported to Santiago where they are processed into the pellets, which can also be used in the construction of pathways and for the production of other practical items.

The team had to obtain permits from the Chilean government and locate companies authorised to transport the pipes, which are considered hazardous waste. The recycling initiative has more positive environmental outcomes than the former disposal method, while providing useful products for the community.

Ramón Gualdrón (team representative)

Energy Coal, Cerrejón, La Guajira, Colombia

Ramón and a project team have been managing the mine's land rehabilitation program, which commenced in 1990 with the goal of remediating disturbed lands so that the lands and ecosystem are similar or superior to what they were prior to the start of mining and so that the dynamics, structures and ecological functions become sustainable.

The team designed a pioneering conceptual and operational methodology, with the corresponding procedures, standards and guidelines to carry out such a program. They have faced significant challenges. The area is subject to long periods of drought, sudden high-intensity rains that accelerate erosion, and just four weeks of optimum sowing conditions per year.

Despite this, 1928 hectares have been rehabilitated, of which 1843 now have permanent vegetation. This has required the removal of 26 million cubic metres of topsoil; extensive land contouring, topsoil spreading and grass establishment; the planting of one million trees; and full compliance with all requirements of the national environmental authorities.

Carlyle Kalloo (team representative)

Petroleum, Trinidad and Tobago Asset, Trinidad, West Indies

Carlyle and a project team created environmental sensitivity atlases for Tobago and the northeast coast of Trinidad, both areas where tourism, fishing, diving, turtle watching, the environment and the recreational use of the beaches are given high priority. The atlases were developed as interactive response tools in the event of an oil spill.

The 18-month project has involved the team in preparing the scope of works, liaising with a local company to carry out the work, visiting all sites with key stakeholders to verify information, integrating different forms of data into digital maps, and developing shoreline protection manuals and oil spill response plans. The atlases have been modified into interactive CD format and distributed to local schools, government bodies, environmental groups, NGOs and other stakeholders.

The project has been conducted in close collaboration with the communities and only local resources were used in the preparation of the atlases, which provide information with a level of detail that was previously unavailable in Trinidad and Tobago.

Bob Kotmel (team representative)

Carbon Steel Materials, BMA Coal – Hay Point Services, Queensland, Australia

Bob and a project team introduced 'diesohol', a fuel blend of diesel and 15 per cent ethanol, for use in the Australian mining industry. A test vehicle (Komatsu WA-180 loader) has been successfully converted to run on diesohol at BMA Coal's Hay Point Terminal. When measured against the Greenhouse Gas (GHG) Index (a measure of carbon dioxide emission), the fuel's performance is superior to natural gas, LPG, electricity and ethanol/petrol blends.

Emissions of oxides of nitrogen (NOx) are 10 per cent lower and oxides of sulphur (SOx) are 15 per cent lower, while insoluble particulates and diesel smoke are reduced by 50 per cent, with no loss of power or reliability. The vehicle conversion kit, consisting of a modified fuel pump and radiator, can be fitted for around A\$2000 and diesohol is comparable in cost to diesel. An added benefit is that diesohol kills bacteria in fuel; once tanks are clean, fuel filters and injectors stay clean.

For BMA, the project has provided a realistic means of helping the Company to reach its GHG emission targets.

EXCELLENCE AWARD

Louis Warren (team representative)

Carbon Steel Materials, BHP Billiton Iron Ore, Western Australia

Louis and his Aboriginal Affairs Department colleagues played a key role in the construction of a Pirmal, a purpose-built place for the storage, management and protection of sacred Aboriginal cultural artefacts.

The existing Pirmal was in a state of disrepair and its collection badly damaged by the elements. The new building, sited close to tribal law grounds that have been used for thousands of years, has special significance for the Aboriginal communities of the Pilbara and has enabled the revival of a sacred traditional initiation ceremony. Designed and constructed in close consultation with Aboriginal elders, the building is fortified against cyclones, termites and vandalism.

Louis and the team have also helped facilitate the collection of many of the thousands of sacred ceremonial artefacts from throughout the region that are now housed in the Pirmal. The Pirmal is now also the new home for many secret/sacred Pilbara ceremonial items repatriated from Australian museums and is regarded as a catalyst for reinvigorating interest in and maintaining the cultural fabric of Pilbara Aboriginal community life.

HIGHLY COMMENDED

Ivete Arão (team representative)

Aluminium, Mozal Community Development Trust, Maputo Province, Mozambique

Ivete and the Trust team established an Agriculture Development Program (ADP) to support the 650 farmers relocated from the area now occupied by our Mozal operation. The four-year program commenced in 2000. Prior to this, each of the farmers was producing up to 300 kilograms of maize per year. By 2001, the quantity had increased, on average, to 1.5 tonnes and in 2002 to 1.9 tonnes.

Since 2003, Mozambique has been experiencing a serious drought. To diversify sources of income for the farmers, and to help them become self sufficient, the Trust has supported two further projects through the ADP. The farmers have been provided with training to breed broiler chickens and, in 2004, support has been extended to include tuition on growing alternative drought-resistant, dry-season crops such as beans, pumpkins, cassava and sweet potatoes.

Provided with seeds in February, the farmers and their families were harvesting crops by May. They have been able to ward off starvation and also sell the surplus crops, thereby taking another step towards self-sustainability.

Philip Hechter (team representative)

Carbon Steel Materials, Metalloys, Meyerton, South Africa

Philip and his colleagues managed the conversion of a vacant employees hostel near Metalloys into the Kotulong Community Centre. The aim of the centre is to alleviate the plight of people in the local community infected or affected by HIV/AIDS, particularly children orphaned by the disease. The prevalence rate of HIV/AIDS in the poverty-stricken Sedibeng district is 30 per cent.

Kotulong, which means 'place of harvest', was developed after the Metalloys team assessed community needs and gained the support of governments, NGOs and the BHP Billiton Development Trust. It presently offers an 18-bed hospice unit, seven foster care units with capacity for 42 orphaned children, a kitchen, library, community hall, resource centre, training facilities, administration office, sports field and gardens. Training for home-based care is also provided.

As well as the medical and counselling services, a poverty alleviation program is conducted at the centre, with sewing and beadwork classes, permaculture projects and other skills development training.

Sheldon Narine (team representative)

Petroleum, Trinidad and Tobago Asset, Trinidad, West Indies

Sheldon and his External Affairs Department colleagues managed the establishment of the Ortoire Educational Development Centre. The villages of Ortoire, Kernahan and Cascadoux comprise 514 households in a region with high unemployment and the poorest academic record in the country.

Planned in collaboration with the Village Council, the Ministry of Community Development, educators and local school principals, the centre comprises a library and Internet cafe. Homework assistance is provided for school children by tutors specially trained as part of the project.

Books were donated by Company employees and the villagers were encouraged to contribute two books each. This involvement engendered a sense of ownership in the centre, which is managed by a Board of Village Council representatives and other local people. Services at the centre are being expanded to include literacy and numeracy classes for adults, vocational training for teenagers, and educational lectures and seminars for all in the region.

MERIT

José Flávio Alves (team representative)

Aluminium, Mineração Rio do Norte (MRN), Oriximiná, Brazil

José and the community relations team developed the 'Education is Everything' project to support children in the Boa Vista community, which comprises 150 families living in villages along the Trombetas River, a tributary of the Amazon River. The goal is to promote a learning-oriented culture through a three-part program, which commenced in 1991.

MRN built and maintains the Boa Vista primary school and supports the teachers with housing and transport. Children moving from the school to Porto Trombetas secondary school are helped to adapt and succeed by being provided with transport, uniforms, schoolbooks, supervised classes and health care. Scholarships are provided to ensure the students can carry on with their studies through to technical college or university.

The success of this long-term program can be measured by the pass rates of Boa Vista children at 5th grade, which since 1996 have risen from 40 per cent to 95 per cent, and by the steadily increasing number who have gone on to graduate and gain professional employment.

Eduardo Becerra (team representative)

Base Metals, Minera Escondida, Second Region, Chile

Eduardo and the management and employees at Escondida's Los Colorados concentration plant, with the support of the company's External Affairs group, developed the Villa Esperanza Community Corporate Social Responsibility Project. This sustainable development program is aimed at benefiting the 100 families living below the poverty line in Antofagasta, near where the plant is located.

Inspired by the determination of the people to improve their living conditions, the team has formulated and begun implementing the five-year program, which is based primarily on enhancing pre-school and primary education, combined with support for projects initiated by local entrepreneurs and small enterprises. A new children's community centre and a cafeteria have been constructed and other lasting infrastructure projects are planned.

A key to the program has been the involvement of Los Colorados' 400 employees and contractors with the people of Villa Esperanza and the involvement of the community in the development and implementation of the program.

COMMUNITY

Lulu Khumalo (team representative)

Aluminium, Hillside and Bayside Aluminium Smelters, Kwa-Zulu Natal, South Africa

Lulu and the Corporate Social Investment steering committee have developed the Schools Conservation Project in partnership with the Wildlife and Environment Society of South Africa, the Zululand Chamber of Business Foundation and the Department of Education. Hillside and Bayside for some years have subscribed to the development of conservation initiatives by supporting the Enseleni Centre, which focuses on fostering environmental awareness among young people.

The Schools Conservation Project has been launched with the aim of 'greening' 38 primary and high schools by exposing them to Enseleni Nature Reserve as a resource for environmental learning projects. Specific objectives are to eradicate alien plants in the region, ensure a sustainable water supply, introduce organic gardening concepts, beautify the schools with gardens and improve community environmental awareness.

The long-term project is carried out in phases ranging from workshops and field trips to setting environmental challenges for the students.

Sean Milfull (team representative)

Carbon Steel Materials, Goonyella Riverside Mine, Queensland, Australia

Sean and the operation's community and environmental teams developed the Community Seedling Propagation Project in partnership with South Walker Creek Mine, Peak Downs Mine, BMA Central Queensland office staff and the Moranbah Learning Alliance schools.

The project developed from a need to source quality native seedlings for use in the reclamation of disturbed land at the mines. Many seedlings previously purchased from various suppliers were unsuited to Central Queensland conditions. Local seedlings propagated in local conditions have higher survival rates.

An opportunity was identified to involve local schools in seedling propagation. While solving the supply issue, the project benefits the schools by providing income and enhancing environmental awareness and education. Teachers discuss how the trees can aid in the rehabilitation of mined land and involve aspects of the project in environment, science, maths and health studies.

Lucio Rios (team representative)

Base Metals, Tintaya, Cusco, Peru

Lucio and the HSEC team developed the Community Watch Program, which allows members of the communities around the mining operations to observe areas adjacent to tailings dams and watersheds and report any environmental or safety issues.

The program was introduced to help build trust. The communities chose the areas they wish to observe and the participants, known as 'community guards', are selected by community heads. Both men and women take part, working in shifts and rotating on a monthly basis. They receive daily environmental and safety training at the sites and are provided with equipment such as radio transmitters. The guards report to their communities on the way the Company is managing its environmental and safety obligations, and in turn advise the Company about any community concerns that need to be addressed.

Since being launched in 2002, the program has provided training and employment for more than 200 people, who have become their communities' 'eyes' on the Company's socio-environmental performance.

COMMUNITY

Gastón Moya Rodríguez (team representative)

Base Metals, Minera Cerro Colorado, Iquique, Chile

Gastón and the community relations team apply a 'working table' model to select projects for support under Cerro Colorado's Community Relations Plan. Through this model, introduced in 2003, local communities meet to discuss their needs, develop and propose sustainable programs and then participate in their implementation.

The Cancosa and Iquiuca communities, for example, identified the recovery of arable land as a priority and submitted proposals for the acquisition of farming machinery, infrastructure and training. These communities mostly comprise small rural settlements practising subsistence agriculture. They are diminishing as more people migrate to urban centres.

By significantly increasing their arable lands (by more than 7 hectares), crop varieties and production volumes, they are improving family incomes and attracting people back to agriculture. Ancestral farming traditions have been preserved and complemented with modern technology and the communities have become stronger in their organisational and management capabilities.

HONOURABLE MENTION FOR FUNDRAISING

Earl Moore (team representative)

BHP Billiton Shared Business Services, Houston, USA

Earl and the Shared Business Services group organised several fundraising campaigns for local community projects in Houston. These included a clothing drive for the Star of Hope Mission (a local shelter for homeless families), a beach clean-up along a stretch of the Bolivar Peninsular, and an employee giving campaign.

In addition to clothing, household goods and other supplies collected for the Star of Hope Mission, employees and associates donated around US\$20 000, double the target. At the beach clean-up, which usually attracts about 30 volunteers, approximately 150 employees and their families arrived and gathered 300 bags of trash. The employee giving campaign raised nearly US\$60 000 for local social welfare and healthcare organisations.