

porgera mine



Placer Dome's

sustainability policy



Site Overview

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Ownership
 Placer Dome Inc - 50%
 Goldfields Limited - 25%
 Orogen Minerals Limited - 15%
 Mineral Resources
 Porgera Limited - 5%
 Yuwai No.65 Limited - 5%

Production began
 September 1990

Production to date
 8.3 million ozs. gold

Recovery process
 Pressure oxidation/cyanide leach

Cash cost
 US \$166/oz.

Total cost
 US \$250/oz.

Mine life remaining
 15 years

Ore reserves as of Dec. 31, 1998
 11.6 million ozs. gold

Number of employees
 1,549 PNG citizens, 264 non-PNG citizens

Placer Dome is committed to being a responsible member of the global community and to implementing a policy of mining and sustainability. We will lead the mining industry to higher standards of performance and earn support for our business around the world.

We believe that sustainability expresses the core of our employees. Sustainability requires profitable mines. It is an essential component in acquiring reserves, developing projects and managing risks.

For Placer Dome, sustainability means the exploration, design, construction, operation and closure of mines in a manner that respects and responds to the social, environmental and economic needs of present generations in the communities and countries where we work.

We are committed to demonstrating that through this policy we can contribute to long-term improvements in quality of life while acting as stewards for the environment. To achieve sustainability, Placer Dome will focus on:

Corporate commitment

Establish an effective management system based on ethical conduct and a commitment to continuously improve performance; integrate sustainability as an essential element in the duties of all employees; and encourage the adoption of our sustainability principles by joint venture partners.

Public responsibility

Communicate with stakeholders and work towards consensus, based on honest discussion and a mutual understanding of concerns and needs.

Economic benefits

Integrate our activities with the economy development objectives of local communities and host countries in which we operate.

Environmental stewardship

Protect human health, reduce our impact on the ecosystem and return sites to a state compatible with a healthy environment.

Social progress

Contribute to the quality of life of employees, local communities and host countries, while respecting their culture, needs and priorities.

Our direction is clear. The task before us is challenging. It is urgent. We are committed to establishing performance measurements and credible verification of our contribution to sustainability. The implementation of our sustainability policy will require creativity and the judgement of our employees at every project in all regions. Our progress will come from our efforts and from our partnerships with communities, governments, joint ventures, non-governmental organisations and international institutions. We invite all those who share our vision of mining and sustainability to work with us in creating our common future.

DICK ZANDEE
 Managing Director
 Placer Dome Asia Pacific

EVERT VAN DEN BRAND
 Mine General Manager
 Porgera Joint Venture



Placer Dome's Sustainability Policy, launched in February 1998, has changed the way the Porgera Joint Venture (PJV) operation focuses on the things we do and in the way we think about our business.

The policy is a challenge to the PJV and its stakeholders to articulate how we see "sustainability" in the mine's environment and how we work together to realise sustainability in practical ways.

Corporate sustainability depends on the development of a close relationship with all stakeholders, particularly landowners and local communities for whom sustainable development is critically important. This is especially true at an isolated mine like Porgera, where few services existed before the start of the mine.

We believe the PJV has contributed to sustainable improvements not only in our workforce, but also in the Porgeran and Engan communities, other Provinces and the whole of Papua New Guinea.

Our approach to improving our sustainability performance is through management systems that identify emerging issues. Measures are then put in place to mitigate these issues and a systematic review process to identify new issues and evaluate the effectiveness of the present processes takes over.

Monthly sustainability performance reporting that integrates safety, environment and community relations began in July 1998, and is the first of its kind within the Placer Dome Group.

Another first at Porgera is a WE CARE and a Sustainability song recorded by our own local band, the Hydraulics, demonstrating the enthusiasm with which our workforce takes these new issues to heart.

After several years of negotiations a "Fly in/Fly out" or "Paiam Township" Agreement was signed in December 1998 between the National Government, the Provincial Government, landowner groups and the PJV. This Agreement fulfills the wish of local communities for a major service centre and realises the construction of a government town occupied by government and mine employee's, as well as private residents.

On the minesite, improvements in our safety record were evident in early 1999, when 175 days and more than three million hours without a lost time injury were achieved.

During 1998 the Porgera mine was in full compliance with the environmental requirements of the operation. The Porgera Environmental Advisory Komiti (PEAK), formed to oversee PJV's environmental performance and public accountability, continued its successful role in 1998.

Our aim for 1999 is to formulate our activities into a plan and management system for sustainability in line with the five corporate goals of PDI which are:

- Corporate Commitment
- Public Responsibility
- Social Progress
- Environmental Stewardship
- Economic Benefits

We are acutely aware that this is a dynamic process, which will continue to challenge us.

A handwritten signature in black ink, reading "Evert van den Brand". The signature is stylized and written in a cursive-like font.

EVERT VAN DEN BRAND
Mine General Manager

Stream Gauging station on Kogai Creek



The Porgera Mine is located in the Enga Province of the Papua New Guinea highlands about 600 kilometres north west of the capital Port Moresby. The mine is at an altitude between 2,200 and 2,700 metres in extremely rugged, isolated, unstable and mountainous terrain. Temperature ranges from 10-25 degrees Celsius and rainfall averages 3.6 metres a year.

The mine is operated by Placer Dome Asia Pacific on behalf of the Porgera Joint Venture (PJV). In 1998, the mine produced 726,806 ounces of gold from the treatment of 5.75 million tonnes of ore mined from a large open pit.

Porgera and Sustainability

In 1998 Placer Dome established its first 'Sustainability Policy'. For the Porgera Mine, this policy means striving to add social, economic and environmental value to the local community through mining operations. The PJV's sustainability objectives include:

- to maintain profitability for the mine life (at present over 15 years);
- to continue as an integrated member of the community;
- to contribute to the well being of the people of the area and
- to leave an environment in place that offers opportunities for future generations after mine closure.

1998 Highlights

- **A Screening Level Risk Assessment (SLRA) was completed confirming the mines activities pose no danger to humans, fish or wildlife. The possible long term effect of mine derived tailings in the lower river system off-river water bodies is being further investigated.**
- **Signing of the "Fly in/Fly out" or "Paiam Township" Agreement.**
- **More than 3 million hours without a lost time injury was achieved by the workforce and contractors of the PJV.**
- **Porgera's annual Environmental Report has been substantially revised to provide a better understanding of the results and trends in data.**
- **Eight Environmental and seven Safety Issue Management Plans were completed. Full implementation is expected to be completed in June 2000.**
- **An Australian Minerals Industry Code for Environmental Management verification audit was undertaken in March 1999. The report is pending.**
- **Further verification of Porgera's systems through DNV audits of both environment and safety systems was planned for the year 2000.**

Environmental Performance

Environmental issues are managed through Porgera's environment department with a staff of 17. The department manages all environmental aspects of the project including monitoring the downstream riverine system for hydrology, chemistry, and biological effects.

Environmental Management System and Issue Management Plans

Porgera's Environmental Management System (EMS) was developed in 1998. The EMS uses eight Issue Management Plans to monitor key components. These plans cover:

- tailing and neutralisation system;
- waste rock disposal;
- riverine impacts;
- progressive rehabilitation;
- decommissioning and closure;
- hazardous materials management;
- general environmental awareness;
- internal/external communications and
- environmental security.

At present, 30% of the Issue Management Plans have been implemented, with 100% implementation expected by June 2000.

Environmental monitoring

The Porgera Mine maintains a comprehensive environmental monitoring program, which assesses hydrological, biological and environmental chemistry issues. More than 10 years of mine site and riverine monitoring data have been collected, (excluding baseline data collection). Improvements in methods of data collection were made in 1998 with two new control monitoring stations installed in

the Lagaia and Ok Om rivers which are unaffected by the mine.

Compliance and environmental incidents

During 1998, the Porgera Mine operated in full compliance with legal and other requirements. The compliance criteria defined by the Papua New Guinea Government at the monitoring station SG3 on the Strickland River have been met throughout the year. No category 4 or 5 major spills (as defined in the Placer Dome incident reporting guidelines) occurred in 1998.

Renewal of Permits for the two erodible waste dumps, Anawe and Anjolek, were received during 1998. Approximately 37 million tonnes of incompetent and friable waste rock was placed in these dumps, which will eventually erode into the river.

CSIRO independent review

In 1996, six years after mining operations commenced at Porgera, an independent review was undertaken to assess the mine's impact on the riverine system and the local people below the mine, to verify predictions made before operations commenced.

The PJV commissioned the CSIRO, an Australian-based independent research organisation with a reputation for scientific excellence to undertake the review. The CSIRO utilised experts in many fields who were independently sourced from all over the world.

The review was released in December 1996 and made the following assessments:

- **The health of local villagers**

The mine had no adverse effects on the health of local villagers.

Left: Members of the Porgera Environmental Advisory Komiti (PEAK) at Lake Murray. Middle: Members of (PEAK) in Nomad. Right: Rehabilitation of area disturbed by the mine



• Chemical impact on rivers

The potential for acid rock drainage is extremely low and hence the potential risk of metal impacts is accordingly low. The PJV collects significantly more data than is required in order to detect early trends or potential problems.

• Sediment build-up in rivers

There is a low probability of any large scale deposition of sediment in the river system. Some deposition and scouring may, however occur in the upper reaches as was predicted in the Environmental Plan.

• Monitoring and compliance

The PJV has been in compliance with legal and other requirements since the project was commissioned. Sampling and analysis techniques used for the monitoring program are appropriate. Predictions made about the riverine disposal on the upper river system have proved to be reasonably accurate.

However, the PJV should monitor more for possible long term impacts, have more staff and expand or upgrade some of its biological and hydrological programs.

Most of the recommendations are in an advanced state of implementation.

Recycling

Recycling on the site is a priority:

- aluminium cans are collected around the mine site and in communities for recycling;
- all waste oil on site is separated and used as fuel in the lime kilns and the rubbish incinerator and
- environmentally friendly packaging is considered in purchases made by the mine.

Code performance

At the end of 1997 Porgera undertook a site audit based on criteria of the Det Norske Veritas (DNV's) International Environmental & Safety Rating Scheme (IERS & ISRS). Porgera scored 12% for safety and 18% for environment and aims to improve these scores to 35% when another audit is carried out in early 2000.

As Placer Dome Asia Pacific is a signatory of the Australian Minerals Industry Code for Environmental Management, an audit was also performed in March 1999. The results of this audit are presently pending.

Environmental awareness and public communications programs

The PJV's Environmental, Sustainability Policy and WE CARE programs have been translated into Pidgin, distributed to all employees and placed on notice boards at the mine site.

Each new employee goes through an induction on environmental issues as soon as they arrive on site.

A monthly 'Sustainability Performance' report, integrating safety, environment and community affairs issues, is distributed to all mine employees and is also posted on notice boards around the mine.

Environmental and sustainability information packages are distributed to all employees on our charter flights. The mine general manager has a column in the monthly mine magazine Ipili Wai Pii in which safety and environmental issues are addressed, and the magazine is distributed internally and externally. A booklet describing the Porgera Mine and surrounding environment was distributed in 1998 to the public.

Stakeholder engagement - PEAK

The Porgera Environmental Advisory Komiti (PEAK) is an external advisory/reference group established in 1996. The primary role of PEAK is to oversee the PJV's implementation of the CSIRO report's recommendations.

PEAK was established in response to concerns expressed by communities and special interest groups about the perceived impacts on the environment and communities living downstream of the mine's riverine tailings disposal outlet. Members of PEAK are drawn from a range of external stakeholder organisations including, the PNG Government, Australian and PNG interest groups and their independent technical experts. The mine general manager is also a member.

PEAK reviews the Porgera Mine's annual environmental monitoring reports and general trends in the data collected. It addresses the environmental concerns of external stakeholders, including community and environmental groups, for consideration by the PJV.

PEAK meets approximately every six months in PNG, generally for three days, for detailed reviews, discussions and reporting. Site

inspections of Porgera and downstream localities are regularly undertaken, and usually involve the local communities.

The 1998 annual report for PEAK is attached as Appendix One to this report.

Site rehabilitation and closure

To date 35ha of disturbed land at Porgera is suitable for rehabilitation. Of this, 29.7ha has already been successfully rehabilitated. During 1998 8.5ha of land was disturbed of which 2.6ha was rehabilitated.

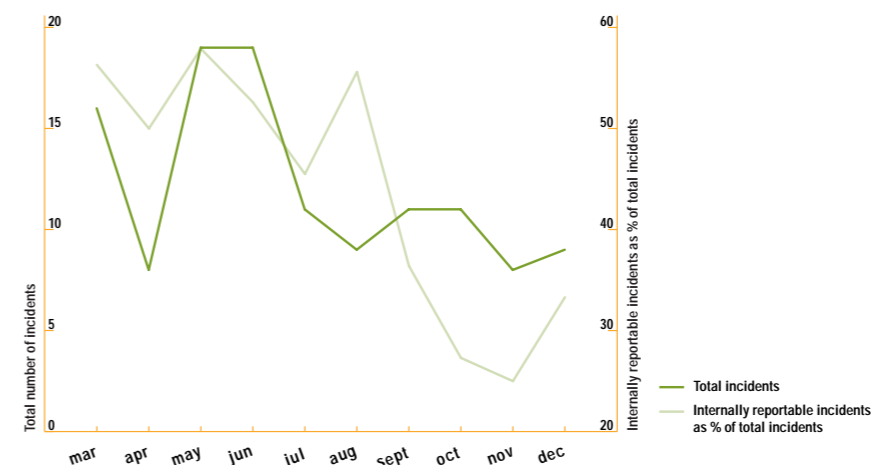
Although closure of the mine is approximately 15 years off, a comprehensive closure plan is already under development to address the social, economic and environmental issues relating to closure.

Performance statistics

Monitoring of autoclave stacks during 1998 show that emissions are well below Australian Guidelines for Sulphuric Acid mist emissions of 0.1 g/m³.

Chart 1 demonstrates that the total number of environmental incidents as well as internally reportable incidents have decreased since implementation of the Issue Management Plans in March 1998.

Chart 1: Total and internally reportable environmental incidents - 1998



Left: An artists' impression of the Paiam township development. Middle: Company officials signing the agreement. Right: Social Development Section sewing class



Chart 2: Mill cyanide consumption, 1992-1998

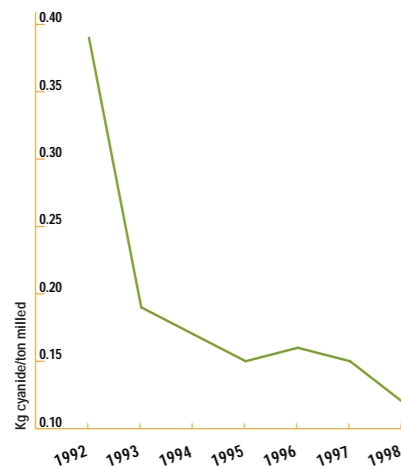


Chart 2 shows that cyanide usage at Porgera has decreased significantly since 1992. The fall in consumption in 1997/98 is a result of the optimisation of the leach circuit and the characteristics of ore being treated.

Social Progress

Social issues are managed through Porgera's extensive Community Affairs department of 115 employees that deliver communication and social development services to the entire area. During 1998 the focus of Community Affairs has moved significantly towards addressing sustainability issues.

Paiam township development

During 1998 consultation and negotiations between the Landowners Association, Porgera Development Authority, Enga Provincial Government, National Government and the PJV resulted in the signing of the 'Paiam Town Agreement.'

This major initiative will gradually improve the quality of life for communities close to the mine and was requested by the people in the valley. It provides for the development of a government town with houses occupied by PJV and government employees and private residents.

The development will be a joint effort by the PJV, the Government, landowners and private interests. It will improve facilities, services and business opportunities for all 14,000 residents of the Porgera valley.

Stakeholders have actively participated in the development of a town plan through educational, agricultural, and economic development studies. The PJV believes this is essential to ensure the long term and sustainable future of the township.

Commercial activity has commenced with the construction of a retail and wholesale supermarket and bakery complex by Crocodile Catering. At a cost of K3 million it is the largest single investment in the Porgera valley outside the Porgera Mine operation.

A video of the town's development has been made in English, Pidgin and the local Porgeran language, Ipli. The video has been shown widely in the community so that all are aware of the development, its benefits and the commitments made by all contributing parties.

It is intended that the town will develop in four stages over five years. The first three stages will be one year each and the fourth will be a two year period.

Women's programs

The Community Affairs department has a team devoted exclusively to womens issues. The development and empowerment of women as individuals and within social groupings has been a major focus of the section. This has

been accomplished by the strengthening of the Porgera Women's Association of over 2000 members. Senior members of PJV management regularly attend monthly meetings.

A women's Business Development Officer and female Agricultural Officer have been assigned full time to provide assistance in the development of economic skills to enhance economic and social independence for women. Some of the activities undertaken include cash crops, crafts and cultural events, business and casual employment in mine rehabilitation initiatives.

Workshops on a wide range of domestic health, nutrition and educational issues have been held. The development of rabbit and chicken programs have made available a low cost source of dietary protein.

Youth programs

Porgera is not immune to juvenile problems. To assist in resolving the issues confronting young people today, the PJV employs two experienced youth officers who work closely with the Recreation Section, to have an integrated approach to youth issues.

The focus to date has been on:

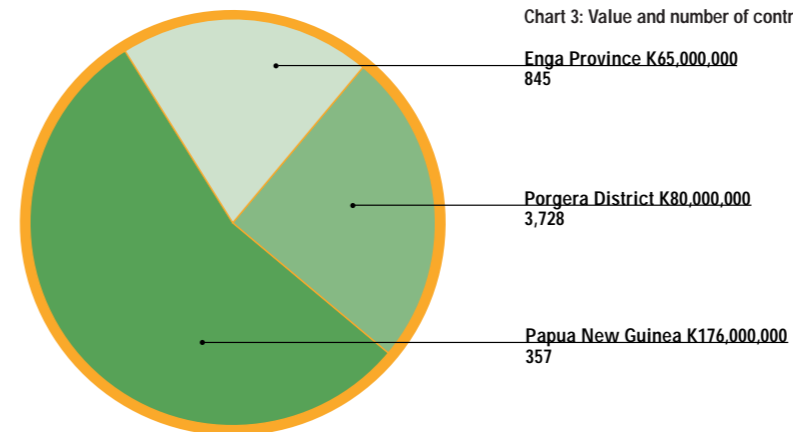
- providing employment through short term work contracts such as community clean up programs;
- promoting participation in sports;
- assisting with formal and informal education and
- the integration of youth into long term decision making process particularly within the Community Issues Committee and District Youth Association.

Health and educational awareness programs and the development of the scouting movement, is planned for 1999.

Business development

Since 1998, PJV's Business Development section has assisted to the local community in the development of business and income generating activities. The initial emphasis was on mine related business opportunities to maximize landowner participation in peripheral mine activities. The focus has now shifted to non-mine related business activities, which will sustain the local community after mine closure. Such projects include agriculture,

Chart 3: Value and number of contracts awarded 1990-1998



Left: Youth beautifying mine gardens. Right: Porgera Community School students in class



property investment, fishing and vegetable marketing.

Chart 3 shows the value and the number of contracts awarded up to December 1998.

Education

The PJV aims to maximise regional opportunities for a broad-based education. Direct scholarships, apprenticeships, on site training, subsidies and travel for isolated students are supported by the company. Training assistance is extended to medical aid orderlies, literacy trainers, and health awareness programs are conducted for community members. Assistance with computers, furniture, books, and school maintenance is provided to a wide range of schools.

Ten percent of mine royalties (K970,100 in 1998) is directly paid in to a trust account dedicated to the education of mine landowner children, now and beyond mine closure. A total of K5,249,859 has been paid into the trust since operations commenced.

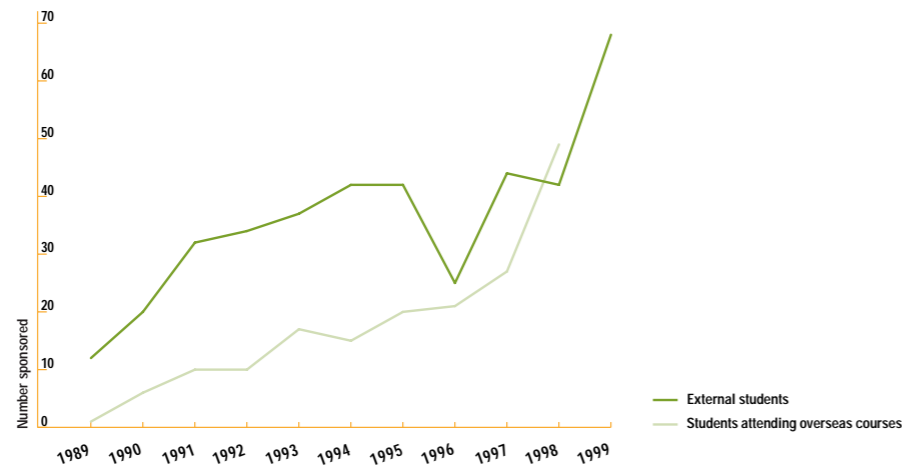
Chart 4 shows the number of employees and non-employees sponsored by PJV since 1989. (Note: when the PJV began operation there was only one university graduate in the district.)

Over K29 million has been spent on education and training for mine employees and non-employees since operations commenced. In 1998 an amount of K5 million was spent for these purposes.

In 1998, a long term Education Plan for the Porgera District was funded under the Infrastructure Development Program (see under Economic Benefits). The plan aims to develop educational institutions and processes that will assist the community to participate more in mine activities and prepare them for life beyond mine closure. In partnership with government, the plan addresses primary, secondary, technical, vocational and tertiary education.

The Tax Credit Scheme (see Economic Benefits) improves educational facilities and teacher accommodation.

Chart 4: Education sponsorship - professional training (includes employees and non-employees)



Indicators of education value added at Porgera

	1993	1998
Porgera Independent School		
Number of teachers/students	3/28	4/74
Porgera District High School		
PJV assisted in funding construction in 1994		
First Grade 10 graduates in 1997		
Number of teachers/total students/boarding students	0/0/0	14/380/190
Porgera Vocational Centre		
Provides courses in trades skills, commerce and hygiene		
Number of students	53	93
Scholarships & Apprenticeships (Funded by PJV)		
Number of students	74	100
Education expenditure	K3.6M	K3.8M

Health

The PJV aims to actively promote and assist with health services and improve health and hygiene in the local community. Curative and preventive health care is a high priority for the PJV both within the mines operations and throughout the wider community. In remote areas the PJV provides logistical and supply support to assist in vaccination programs and preventable disease eradication patrols.

The PJV provides emergency medical evacuations for critically ill people in remote areas and medical supplies are made available to areas receiving little or no government support.

Medical assistance is provided during natural disasters such as droughts in the Highlands or floods in the Lowlands.

Where possible, health assistance provided by the PJV involves all levels of government, community groups and NGO's. Some examples are:

- the recent Yaws eradication program and general immunisation of the Hewa people was carried out as a joint initiative with the 'Gutnews' Lutheran Church;

- the present Filariasis trials and worm treatment in the Lake Murray area are undertaken in conjunction with the World Health Organisation;
- following the recent Aitape tidal wave disaster, the PJV with the local Roman Catholic Church provided assistance to affected communities and
- during the 1997 drought, which affected many parts of PNG, assistance was provided in the Porgera District and Enga Province by the PJV in conjunction with AusAid and World Vision.

Sports

In 1995 the PJV established a dedicated Recreation Section to directly assist the development of sporting and recreational activities in the Porgera district.

The Porgera community have since emerged as real and consistent contenders at regional and national levels of competition.

Gold medallists of the Porgera Martial Arts Group



Community consultation

Quarterly meetings are held with national, provincial and local level government, landowner, and community representatives. The meetings report on and discuss operational, environmental, training and localisation, social impact and business development issues.

The PJV also organises monthly meetings with landowners and Councils to discuss relevant issues. This is known as the Community Issues Committee and is attended by PJV senior management as required.

Economic Benefits

The PJV's activities have contributed to the economic welfare not only of the Porgeran and Engan communities but of all regions of PNG. The PJV is committed to ensuring that these benefits continue even after mine closure.

Tax Credit Scheme and Infrastructure Development Program

Both the Tax Credit Scheme (TCS) and the Infrastructure Development Program (IDP) have to date contributed in excess of K24 million throughout the mine impact area

in the form of infrastructure development and some operational funding support.

All projects improve non-mining capital infrastructure. The emphasis is on education, health, roads, bridges and town development.

Under the TCS, the PJV manages a fund based on 2% of the Joint Venturer's assessable income. The scheme's expenses are deemed tax paid by the PJV to the PNG government. Government at all levels, landowners and the PJV are all required to approve the projects before implementation.

The TCS was initiated by Placer and approved by Government for use in mining and petroleum projects throughout PNG.

The IDP is fully funded by the PJV and K50 million will be funded (at a rate of K5 million per year) for ten years. The guidelines are similar to that of the TCS but not restricted to capital projects.

Under the TCS and IDP schemes, much emphasis is placed on the development of Paiam town, which is intended to provide a base for the development of the district during the mine life and into the future.

Long term planning is underway to ensure the town is self sustainable after mining ceases. To assist with institutional strengthening, training programs for local government officers have commenced.

Developing educational facilities in underdeveloped areas is a key issue. The TCS and IDP are being used to ensure the local area has sufficient schools for the present and future. Projects are selected through a consultation process with local and provincial governments to ensure maximum and lasting benefit to the broad community. Since the inception of the TCS more than 30% of expenditure has been on education infrastructure.

Improving health infrastructure is also a high priority of both schemes and includes assisting district hospitals, health centres and village aid posts. Before any project begins construction, the PJV must receive a written undertaking from the relevant Provincial Government that it will fully staff and fund the facility. Chart 5 shows the distribution by type of the TCS since inception.

Compensation

Very substantial amounts of compensation payments have been made over the mine life to date. These include compensation for impact, occupation fees, community assets, relocation housing and environmental compensation. Total payment for compensation since operations commenced has exceeded K57.7 million. In 1998 K2.7 million was paid in compensation.

Community donations

Community donations are made to support medical evacuations, medical supplies, disaster relief, support for youth, women's activities and sports. These payments have totalled K5.7 million since operations commenced. In 1998 donations amounted to K1.7 million. As operations have progressed there has been a decrease in compensation payments and as a result of PJV's sustainability policy an increase in contributions for essential community activities. This change of emphasis is shown in Chart 6.

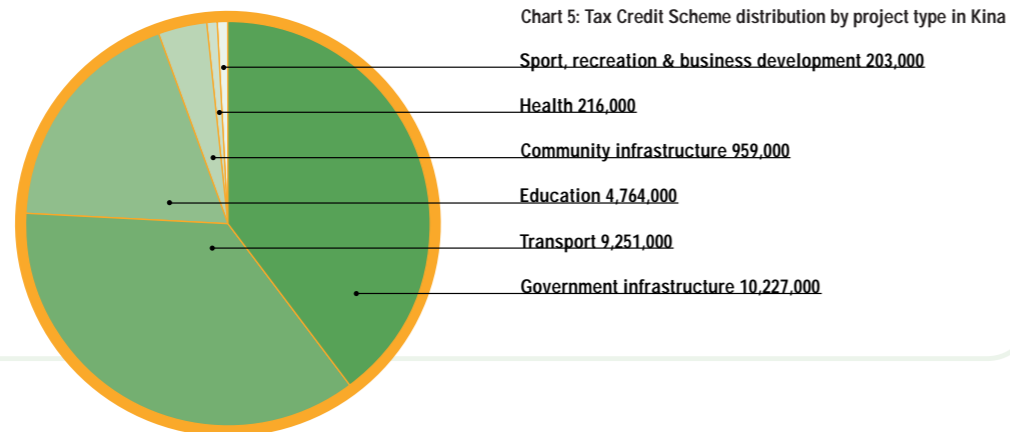
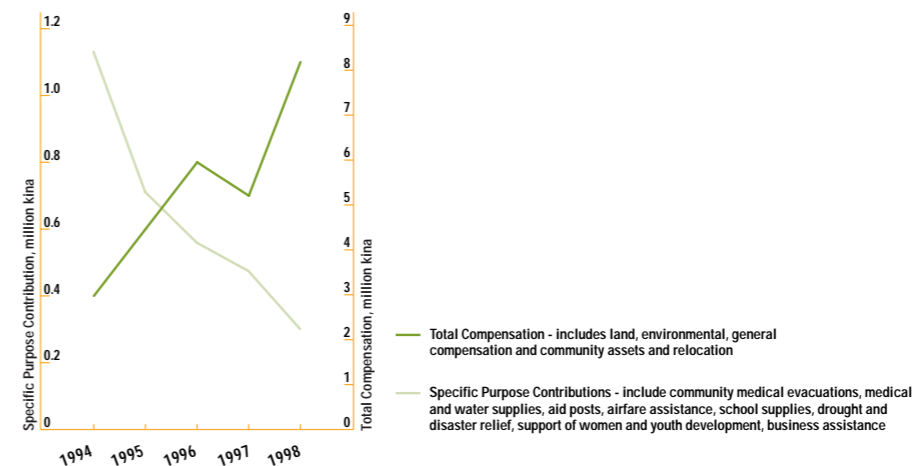


Chart 6: Moving towards sustainability
(decreasing Total Compensation & increasing Specific Purpose Contributions for essential community activities as relations with community become robust)



Road construction at Palam



Landowner and provincial government equity

During the 1998 Development Forum, landowners from the Special Mining Lease area and the Enga Provincial Government negotiated with the State to participate in the 10% equity that the State purchased in the Porgera project. Together they successfully negotiated to acquire half of the States interest on a concessional basis with an option to acquire the other half at a later date at a fair market value. Such an agreement for equity participation by landowners and the provincial government in a major mining project was a first of its kind in the Asia Pacific region.

In 1996 the landowners and the Provincial Government relinquished their option over the remaining State equity portion of the project. Settlement was reached whereby the State retained 5% interest in the Porgera project and the landowners and Enga Provincial Government retained 2.5%. In settlement for the relinquishment of their option, the landowners and Enga Provincial Government were paid K9 million each.

The landowners and Enga Provincial Government have used the proceeds from their

option relinquishment payments to invest in long-term property projects in Port Moresby. The landowners have purchased the Lodge office and apartment building while the Enga Provincial Government has purchased a high rise apartment building at Ela Beach. The Lodge houses both the headquarters of Placer Niugini and the Chamber of Mines and Petroleum. These investments will allow the local equity holders in the Porgera Gold Mine to continue to receive income long after the closure of the mining project and will greatly facilitate their aim towards self-reliance and sustainability.

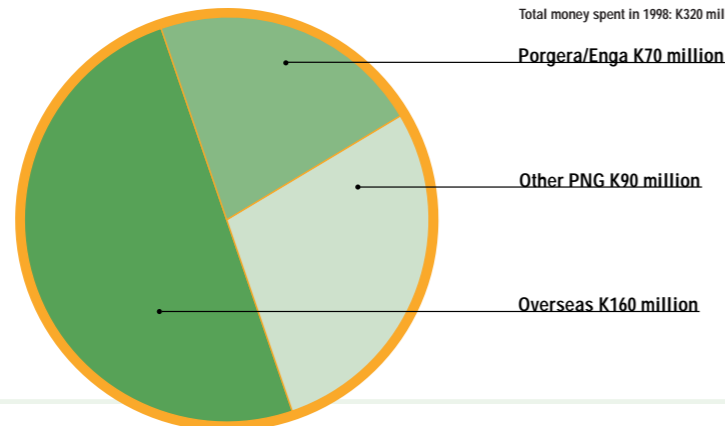
Where does Porgera's money go?

Chart 7 demonstrates the amount of money spent in 1998 by the PJV and the distribution of this money locally, nationally and internationally. The PJV contributed K70 million to the local economy, and K160 million to the whole of PNG.

Economic value added

Porgera generates substantial economic benefits for the Porgera district, Enga Province and

Chart 7: Where does the money go?
Total money spent in 1998: K320 million



Economic value added / Kina M

	1997	1998	Cumulative Life Of Mine
Royalties paid	6.6	9.7	52.5
Compensation	3.5	2.7	57.7
Donations	0.7	1.7	5.7
Education	3.8	5.2	29.5
Community infrastructure	2.3	13.5	34.4
Salaries & wages	52.3	58.5	* n/a
Taxes & duties	** 55.0	** 58.0	** 532.0
Local business & services	8.7	12.1	145.3
Other goods & services	8.7	12.1	145.3
Site costs	270.0	320.4	* n/a
Operating earnings after tax	** 8.6	** 31.2	* n/a

*n/a Not Available
**Estimate
***Placer Dome's 50% interest only

Papua New Guinea. The economic value added by the Porgera Mine is shown in the above table.

WE CARE and High Performance Culture

WE CARE

The Placer Dome Asia Pacific group of companies has developed an initiative to ensure continual improvement in safety and environmental practices at all operations. This initiative is known as WE CARE which stands for Workplace and Environmental Care and Risk Elimination. Under this program, the PJV workforce has committed itself to striving for excellence in the areas of occupational health, safety and the environment.

A pocket sized "WE CARE Handbook" was published and distributed on site to help employees understand the PJV's safety and environmental policies. The handbook is also being printed in Pidgin.

Under the WE CARE banner and in cooperation with the Porgera International

School an annual Porgera Clean-up Day commenced in 1998 when primary school children collected more than 140 bags of rubbish. A "WE CARE" poster competition was also held amongst the local schools to increase the children's awareness of safety, environmental and sustainability issues. This competition was extremely successful with prizes distributed by the Mine General Manager.

The PJV's efforts to promote the WE CARE theme has gone one step further by having the message effectively communicated by song. 'The Hydraulics', Porgera's own resident band composed two songs that have been recorded on video and released to the workforce and local communities. This has proved to be an excellent education tool for the community and employees.

High Performance Culture

In 1998 Placer Dome launched a new High Performance Culture initiative for its operations and employees worldwide. The program encourages employees to challenge themselves to perform better, learn new ways

Members of the Hydraulics "WE CARE" Band



to resolve conflict, work in partnership and take ownership of the company. Developing a High Performance Culture is essential to ensure the success of the operations and will be of benefit to all stakeholders.

Since embracing this new culture, improvements are evident in the way people work together, share ideas, rise above circumstances and adapt to change.

At the end of 1998, 161 employees had attended the four-day High Performance Culture training course and the target for 1999 is to have 550 employees complete the course. Senior personnel, contracting companies and Government personnel have also attended the course and the benefits of High Performance Culture is spreading to all areas of the Porgera operation.

A Pidgin course is also being developed.

Safety

Porgera's safety performance again improved in 1998. On 6 March 1999 the previous record of 156 days without a lost time injury was eclipsed and on 20 March 1999, three million hours without a lost time injury was achieved.

To further improve safety performance seven Issue Management Plans were developed in 1998 consistent with Det Norske Veritas (DNV) international protocols. The seven plans addressed the following safety issues:

- Occupational Health and Hygiene;
- Emergency Preparedness;
- Rules and Work Permits;
- Accident Reporting and Analysis;
- Materials/Services Management;
- Planned Inspections and
- Maintenance and Loss Control Rules/Manual.

Performance measures

In 1998 Porgera's Lost Time Injury (LTI) rate was 0.32 (similar to that of 1997). LTI days lost were significantly lower in 1998 as a result of improved injury management and rehabilitation practices. These LTI rates compare well with other mines internationally and are currently the third lowest amongst Placer Dome sites worldwide. There was a reduction of medical injuries from 8.5 in 1997 to 4.7 in 1998, a drop of around 45%. Similarly, First Aid injuries also decreased from 8 to 6.7. All the above performance indicators were based on 200,000 man-hours.

Safety and environmental incident reporting

A computerised safety and environmental accident/incident investigation and reporting system has been developed at Porgera. This proactive system will prevent and minimise accidents and will ensure that specific actions to prevent recurrence are implemented. A key aspect of this comprehensive database is that it allows the tracking of near miss incidents and hazards identified during workplace inspections to ensure that guidelines are revised before a serious incident occurs.

Emergency response

During 1998 Porgera's emergency response plans were updated and equipment was upgraded to ensure quick response to emergencies. Two containers equipped with oil skimmers, adsorbent pads and other emergency response equipment for tackling off site emergencies are always ready for quick response.

On 17 July 1998 a tsunami struck Aitape in the West Sepik Province. Thousands of people were killed and injured. The PJV was one of the first to respond to the disaster sending its emergency rescue team of twelve people and

a four member medical team. The rescue team was involved in searching for and rescuing survivors while the medical team treated the injured. This was Papua New Guinea's worst natural disaster in 50 years.

The Future

Exploration

The PJV has maintained an aggressive and well-funded exploration program since operations began. Since 1995 the exploration program has added more than five million ounces of gold to Porgera's mining reserves. This has extended the mine life to approximately 15 years.

Proven and probable reserves estimated at 31 December 1998 were 101.4 million tonnes at 3.6 grams of gold per tonne containing 11.6 million ounces of gold.

Closure Planning

In late 1998, a full time engineer was assigned to commence development of a 'Mine Decommissioning and Closure Plan' for Porgera. This plan will define how to return the mine impacted area to a condition as close as possible to that of pre-mining. Although the open pit will remain, it is expected that the waste dumps and other disturbed land will be recontoured and revegetated. Part of the infrastructure may be transferred to local authorities including the various buildings, power reticulation, water and sewage treatment facilities. When the plan has been suitably advanced, input will be requested from the government and local communities.

The development of the Paiam Township will continue during 1999 as part of the agreed five-year development plan. It is anticipated that 40 houses and additional infrastructure will be completed during 1999 which will contribute substantially to the growth of the town.

The PJV is committed to developing the 'Porgera Sustainability Management System' (PSMS). Under the PSMS, the PJV will participate in the planning and implementation of long term sustainability initiatives in partnership with key regional stakeholders (district government, local level government councils, landowner associations, women, youth associations and local NGO's). The PSMS is presently under development but has already identified most of its key components for sustainability. These are health, education, justice, primary industries, industry and services and community development. The PJV will fully integrate its Community Affairs programs into the plan.

Food, clothing and medical supplies being supplied by the PJV



Resource inputs

Material input	1993	1998
Water (ML/year)		
Make-up (calculated)	19,940	27,290
Recycled (calculated)	400	540
Power		
Usage (MWhr)	371,095	473,307
Diesel fuel consumption rate (L)	44,335,888	58,476,726
Diesel fuel consumption rate - average (L/day)	121,776	160,203
Diesel used by mobile plant (L)	40,000,000	52,000,000
Petrol consumption (L)	NIL	NIL
Natural gas (methane & naptha) (tonnes)	147,274	186,118
Reagent consumption (tonnes)		
Cyanide	645	692
Lime	56,301	61,687
Flotation and other chemicals	1,260	1,782
Acids (HCL, sulphamic & sulphuric)	337	328
Reagent consumption rate (kg tonne ore processed)		
Cyanide	0.148	0.120
Lime	12.85	10.73
Flotation and other chemicals	0.288	0.310
Acids	0.077	0.057
Mine lease areas (ha)		
Operations	2,500	2,500
Water supply	200	200

Resource outputs

Material output	1997	1998	
CO₂ emissions* (tonnes)			
From equipment/vehicles	119,000	157,000	
Sulphuric acid mist (g/m ³)	0.05	0.06	
Mill tailing			
Tonnes (000's)	4,382,083	5,748,777	
Cyanide in tailings (total CN - ppm)	6.6	6.1	
Waste rock mined (MT)			
To stable dump	24.2	24.7	
To erodable dump	36.6	37.0	
Total	60.8	61.7	
Refuse (m³) (estimate)	5,840	6,000	
Sewage (m³)	572	600	
Rehabilitation (ha)			
Area of land disturbed	1,700	12 mths na	To date 1,700
Area of land rehabilitated	na	3	30
Land available for rehabilitation	na	na	5

*2.69kg of CO₂ per litre of diesel fuel

Appendix One 1998 PEAK Annual Report

The Porgera Environmental Advisory Komiti (PEAK) held three meetings in 1998. In March and November PEAK met in Port Moresby, while in August the meeting was held in Porgera and a lower Strickland river visit was made to Lake Murray and Nomad to meet with local communities and discuss their concerns.

Membership

The membership of PEAK was increased in 1998 so as to provide broader input and expertise to the committee's deliberations.

The new members are:

Gerard Saleu is a Research Fellow at the Papua New Guinea Institute of Medical Research. The Institute is an independent medical research organisation specialising in tropical diseases. Gerard is a member of PEAK and has expertise in tropical diseases.

Michael Kiap is a lecturer in Chemical Technology at the Department of Applied Science of the Papua New Guinea University of Technology. Michael is a member of PEAK and has, among others, expertise in water chemistry.

Dr. Roland Seib is a research fellow at the Melanesian Institute for Pastoral and Socio-economic Services. As an ecumenical research institute it is designed to help the churches speak more clearly about the needs of people in Melanesia. A graduate in political science, Roland specialises in economic and social issues.

Owing to staffing changes, the PNG non-government organisation, the Individual and Community Rights Advocacy Forum (ICRAF) was unable to provide a representative to attend PEAK meetings in 1998.

Major issues

PEAK's deliberations in 1998 remained primarily focussed on the riverine disposal of tailing and waste rock by the mine and the impact of this material on the environment and the communities living adjacent to and downstream of the mine.

CSIRO review recommendations

The PJV reported to PEAK on its progress in implementing the recommendations of the CSIRO review into the mine's riverine tailing disposal. Action highlights included:

- upgrading of river monitoring stations was completed and control sites established. These stations are on the Ok Om and Upper Lagaip rivers, which are not affected by the mine's activities, to improve the quality of the dataset for scientific interpretation;
- a consultant report on sediment deposition on the Strickland River floodplain was completed, revealing elevated metals concentrations. Further analysis is being undertaken to assess what proportion, if any, of the metals were mine derived;
- the commencement of a review of alternative methods of tailing and waste rock disposal;
- visit of PEAK members to Lake Murray and Strickland River villages to discuss concerns with the village people in relation to perceived mine impacts;
- screening level risk assessment by Parametrix confirmed that little if any risk to humans, fish or wildlife exists as a result of mine activities. Further detailed studies are under consideration;
- improvement of annual reporting with more emphasis on detected trends and
- Improvement in staffing of department and statistical handling of data.

Food safety

PEAK has recommended further studies of human foodstuffs, particularly fish and sago, so as to ensure food safety. These studies will be completed in 1999.

Gold panning health risks

PEAK and PJV are concerned about the health risks to the people illegally panning for gold in the creek immediately below the Porgera mine's tailing outlet and the Anawe erodable dump. Gold panning at this site is dangerous because of:

- the danger of falling rocks;
- the potential effects of long term exposure of people working in undiluted but neutralised tailings and
- illegal and unsafe use of mercury.

PEAK has recommended that the Porgera Joint Venture consider additional measures for the protection of the gold panners health and increasing their awareness of the risks involved.

Water quality testing

PEAK has had discussions with the Secretary of the PNG Department of Environment and Conservation (DEC) over community concerns about the reliability of water quality measurements taken by the PJV and its consultants. DEC has given an undertaking to independently measure water quality in 1999.

Future plans

PEAK will meet in April (Port Moresby) and in October (Porgera) in 1999. It is envisaged that sub-committees of PEAK will hold interim meetings, including visits to the communities down-river from the mine.



MEG TAYLOR
Chairperson

Further Information

Porgera Management Committee Members

DW Zandee
Placer (PNG) Ltd
Highlands Gold Properties Ltd, Chairman

J Loney
Placer (PNG) Ltd
Highlands Gold Properties Ltd

P Cassidy
Goldfields Porgera Ltd

PG Matthews
Goldfields Porgera Ltd

C Lepani OBE
Orogen Minerals (Porgera) Ltd

MK Andrew
Mineral Resources (Porgera) Ltd

Porgera Mines Management Team

Russell Barwick
General Manager, Porgera Joint Venture

Evert van den Brand
Mine General Manager

Mark Fisher
Mine Superintendent

Phil Stephenson
Mill Superintendent

Bob Trent
Maintenance Superintendent

Noel Walters
Community Affairs Manager

Hugh Wilson
Environmental Manager

Paul Bleakney
Administration and Finance Superintendent

Bruce Gray
Loss Control Superintendent

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Porgera Mine

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The following reports are available upon request:

PDI Code of Business Conduct
PDI Sustainability Policy
PDI Sustainability Report 1998
PDAP Equal Opportunity Policy
PDAP Safety Policy
PDAP Environmental Policy
PJV Environmental Policy
PJV Mine Safety Policy
We Care Programme
PJV Vision
PJV Values

PDI = Placer Dome Inc.
PDAP = Placer Dome Asia Pacific
PJV = Porgera Joint Venture

Reports/newsletters etc...
Monthly Supervisors Brief
Ipili Wai Pii
CSIRO - Review of Riverine Impacts
PJV Project Information
PJV In Harmony
PJV Environment
Porgera and the Environment
Annual Environmental Report

PEAK

www.pjv-peak.com

Placer Dome

To access the electronic versions of this and other Placer Dome Group sustainability reports please visit the Placer Dome website found at www.placerdome.com

