Bougainville Copper, BOC.AX, ISIN PG0008526520
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Bougainville Copper

Radically rethinking one of the world's most complex corporate situations!

- Civil war shut down Bougainville Copper's mine and led to the share price falling by 98%. What was once the largest privately financed industrial project in the world, subsequently lay dormant for 18 years. However, the company remained listed in Sydney, New York and Frankfurt.
- The share price recently surged to 27% of its pre-closure level. Does the market anticipate tangible progress towards reopening the mine?
- This report sets out why Bougainville Copper's management is likely to soon unveil a radically new approach for restarting mining on the mineral-rich island, Bougainville. Key amongst these factors are technologies that simply didn't exist 20 years ago, or which weren't economically feasible at the time. Almost as a mere side-effect, these technologies will also provide a huge boost to the company's metal reserves, thanks to previously uneconomic copper turning out to nowadays be a financially viable mining prospect. The company's mineable copper and gold reserves are likely to ultimately be a multiple of what they had been thought to be up until now.
- The management recently hinted at a comprehensive 3-year plan to return to mining and exploration on Bougainville. This action plan will act as a catalyst to close the gap between the low share price and the much higher intrinsic value. The share is likely to first catch up with the proven metal value of the existing mine. During a second phase, Bougainville Copper should have not just one, but several mining and exploration projects operating. With potentially many decades of mining ahead, the share should then once again be valued on a p/e basis.
- Bougainville Copper is the world's only decent-sized opportunity to buy into proven base metal reserves at a tiny fraction of their net present value. The existing proven reserves alone are worth an estimated A$7.77 per share, or 5.2 times the current share price. This valuation does account for the fact that there is currently no mining going on. Additionally, two further factors are currently valued by the market with zero: an impending upwards revision of metal reserves due to much-improved technology, and the seven additional, but currently unused, exploration areas owned by Bougainville Copper.
- The longer-term prospect is for a rise in share price by a factor of 20. Compared to the price of my earlier report from December 2004, Bougainville Copper can produce a return similar to that of Katanga Mining – the Toronto-listed Congolese mine that was recently rejuvenated after a civil war related closure and which rose in price 160 times over 4 years.

Aerial view of the Panguna copper mine

In its day, Bougainville Copper set a number of world records:

- Largest manmade hole on the planet (requiring two Golden Gate Bridges to span its width).
- Largest gold producer in the non-Communist world besides South Africa (up to 46% of the mine's revenue actually came from gold).
- Largest start-up production of any mine in the world (30m tons of ore in first year of operation).
- Largest privately financed industrial project on the planet.

The mine has been dormant since 1988. In absolute terms, other mines that have been opened in the meantime are bigger still. However, when adjusted to purchasing power parity, the mine's construction costs of $5.5bn (in today's money) still make it one of the largest private projects ever undertaken.

The overall mineral reserves on Bougainville (dubbed "Treasure Island" by geologists) and the fact that only Bougainville Copper has exploration licenses for Bougainville, could yet again turn the company into one of the world's largest copper and gold producers.

In May 2007, a 3-year plan to return to both mining and exploration was first hinted at by the management. The 2008 shareholders meeting (tentatively scheduled for May 8th 2008) should yield further specific information.

How to buy world-class assets for pennies on the Dollar

Dear Reader,

Destruction, decay and desolation more often than not, lead to first class assets being sold at firesale prices.

That's why from every crisis stems an opportunity for extraordinary profits. At least for those who are alert enough to grab a bull by its horns when there is an opportunity to do so.

Never one to take unnecessary risks, I much prefer to buy existing assets on the cheap. During my 17-year career in investing, trying to snatch assets at a discount has proven the most lucrative form of investing for me.

Using this rule, shareholders of a company that until a few years ago hardly anyone had ever heard of, just made 160 times their money in less 4 years.

That's turning US$10,000 into US$1.6m, in case you are interested.

The old operating manual for the Panguna mine's power generation plant

The dormant mine that got reawakened

Some investment stories are almost too good, to be true.

That's what shareholders of Katana Mining must think when checking their account balance. In early 2004, their shares were virtually worthless. The company's key asset was a mine that had fallen victim to a civil war in Africa. The mine had ceased to operate in the 1980s and the company's assets were rotting away under the sub-Saharan sun. Quite a few of the mine's assets actually had bullet holes in them. Nasty!

At the time, few investors would have been willing to invest into the Democratic Republic of Congo.

Between 1998 and 2003, the Central African country had seen what historians deem to be the world's worst warfare since the end of World War II. The year-long battles left at least 4m people dead, with one estimate ranging as high as 13.8m casualties. Whichever estimate you use, the Second Congo War ranks among history's 10 worst conflicts when it comes to loss of human life. That's on top of the fact, that during the colonial reign of Belgian King Leopold, Congo had already seen one of history's biggest genocides, with an estimated 8m deaths. Congo has quite a tarnished history.

Right in the midst of the warzone, stood Katanga Mining's vast copper and cobalt mine. Naturally, the war had brought production to a standstill. The mine is part of the famous Congo copper belt, which during the 1980s was producing 7% of the world's copper output. Work on the vast open pit mine was brought to a violent halt and the mine fell dormant.

That is, until investors rediscovered the vast, proven, copper and cobalt reserves.

Why it's worthwhile to research overlooked, forgotten companies

What is now Katanga Mining was, until a few years ago, trading on the Toronto Stock Exchange as Balloch Resources.

During the immediate aftermath of the war, investors that at first wanted to stay anonymous, acquired control of the company and injected some fresh money. This happened in 2004, just one year after the war ended. Using the rejuvenated listed mining shell, they took the opportunity to buy Congolese mining assets at a time when everyone else thought that venturing into this former warzone was utter madness and akin to throwing your money out the window.

These investors showed anti-cyclical cunningness in its very best form. They also proved common sense. After all, they merely anticipated that the country eventually had to find a way to get back onto its feet, financially and economically.

The 2004 welcome committee for investors into Congo (who in the meantime have been replaced)

What more obvious a solution could have been found to this challenge, than to reactivate the enormous copper and cobalt reserves found in the country's Katanga district? With about 10% of the world's copper reserves, Congo had an asset that allowed it to rebuild its shattered economy. The minerals were literally waiting there, ready to be picked out from the ground. After all, the risky exploration work had already been done and geologists knew exactly where the minerals were located and how they had to be gotten out of the ground.

Lucky for those who early on bought into these proven copper assets before newspapers started to feature this company.

Katanga Mining was effectively a newly formed company, however the mining assets that it had bought were well researched and had already been in production. There simply was no doubt about this being much more substantial a resources investment, than for example, an exploration company that had yet to prove its reserves.

The company did not have much of a PR department. However, anyone who has ever bought into a much-touted exploration venture and subsequently lost their money, will know that proven reserves in the ground are generally worth much more than press releases and PowerPoint presentations promising a future mineral find. At least, true value investors will have realized as much. Again, this is a report aimed at investors who like to buy existing assets at a price that is much lower than their replacement value.

It all happened much quicker than anyone had anticipated.

An old saying goes that investors should be fearful when others are greedy, and greedy when others are fearful.

It was other peoples' fear that enabled the investors behind Balloch Resources to buy these assets on the cheap. For after all, the fighting could not have possibly destroyed the key asset of the company. Those 200m tonnes of proven copper and cobalt ore could not have cared less about what was happening above ground. They had already been holding out underneath the ground for many millions of years.

The early investors also figured out that the only two potential risks worth mentioning, were continued inactivity or nationalization. They also figured out, that these risks weren't overly large.

Inactivity clearly wasn't that much of a risk, given that the Democratic Republic of Congo was bound to need some way of earning government revenue.

Neither was nationalization much of a risk, given that the newly shaped country had to keep the goodwill of international investors intact. Without capital and expertise from foreign mining companies, these mines would have never re-entered production. It's pretty hard nowadays to nationalize assets (at least without shooting yourself not just in one foot, but in both feet – try getting anywhere after you have done that!).

Anyone who made the effort to take a bird's eye perspective, had to notice that there was an opportunity to buy existing, safe assets for the proverbial pennies on the Dollar.

It was also pretty clear that this situation wasn't going to last forever.

Katanga Mining: As per usual, the early bird caught the worm

However, even after the name was changed it took the market quite some time to pick up on the new course of events. However, once things took off, there was no stopping for the share price. As ever so often, things first take longer than originally anticipated to take off. Once take-off has occurred, it soars higher than anyone would have thought possible.

Over the course of 4 years, the share price of Katanga Mining rallied from C$0.10 to a record high of about C$28.

The rally even proved to be sustainable, i.e. it wasn't all hype and hot air. The record price paid in mid-2007 was due to another mining company launching a bid, albeit an all-paper one that shareholders eventually rejected. Instead, Katanga opted to merge with Nikanor Mining, a company that owns the neighbouring copper deposit in Congo – with a view to realizing about US$700m in savings thanks to improved economies of scale. At last count, Katanga Mining shares were trading at around C$16.

Investors who saw the signs early enough, had an opportunity to turn C$10,000 into a cool C$1.6m within just a few years (or closer to C$2.8m for those who sold out during the heated take-over battle). As I said, from crisis stem extraordinary opportunities.

Anyone who wants to hit a real investment home-run, will actually only ever find them when researching unusual opportunities that are truly off-the-beaten-path. Needless to say, if you don't grab the bull by its horns when encountering

"Congo's faded copper town perks up in mining rush"
Reuters, 24 October 2007

Amid rusted hulks of abandoned plants and huge mine craters, Congo's former top copper town, Kolwezi, is showing signs of a reawakening.

The town in the south-eastern copper belt went into virtual hibernation two decades ago, after looting by former dictator Mobutu Sese Seko forced the closure of most of the region's copper mines - some of the world's biggest.

"Over the last couple of years the changes here have been enormous," said Martin Christie, an official with Canadian-listed Katanga Mining, one of many firms reviving the mining industry.

"A petrol station reopened a few months ago. There was no need for one before: there were no vehicles on the streets…."

For the entire article, visit http://www.reuters.com/article/inDepthNews/idUSL1565967620071024?sp=true

such a situation, you might end up waiting years for another opportunity of a similar scope and quality to cross your path.

Dormant mines with proven reserves are far and few.

Just a year after Balloch was renamed Katanga, I recommended buying into another mining company affected by civil war.

Bougainville Copper, owner of one of the largest proven copper ore bodies in the world, had stopped operating in 1989. When I wrote my first extensive report about the company, the share was trading at less than 10% of its former all-time high. Not only did no one believe that the company was ever going into production again, but anyone suggesting as much, ran the risk of getting flak from the Australian and German press (those being the two countries where Bougainville Copper has the most shareholders).

Personally, I never much cared when yet another newspaper accused me of skulduggery. More often than not, this is merely a sign that I am onto the right thing.

I remember how back in 2003, a German brewery giant publicly denied my prediction that it was going to sell out to a multinational brewer. Just a few months later, the company was gobbled up by the Danish brewery giant, Carlsberg.

You are now reading one of the few investment websites that takes a global perspective and engages in truly in-depth research

Or check on my various reports about Monaco, where some newspapers had gone as far as accusing me of making fraudulent statements. Three years later, they found out that my prediction was actually too conservative. Monaco embarked on a multi-billion construction project, that earlier had been deemed to be a pipe-dream. It was only on my website that investors were able to read about it with several years lead-time (and make about 200% in the process by buying into AAA real estate assets at more than an 80% discount to their net asset value; these old reports are all still available for download on my website, in case you care to read them).

The same is now happening again, in a far-end corner of the globe.

Bougainville Copper has in the meantime risen from 2% of its former all-time high to currently 27% of the price it was trading at before the mine shut. Quite a tidy profit for those who got in at my recommended price and sat tight. Not everyone did buy at the low price. But there is not a single person, who bought into Bougainville Copper when I first wrote about it and did not make a profit in the meantime. The long-term chart proves as much.

However, if this report is right then the best is yet to come.

Just as in the case of Katanga Mining, here is an opportunity where a share price could enter a multi-year upward trend that will lead to each share multiplying in value.

Switch the phone off and prepare for some serious reading

Needless to say, such extraordinary opportunities don't come easy. Usually, they are borne out of extremely difficult situations. Indeed, if this reports ends up being long enough to justify opening a bottle of red while reading it, it's because the starting situation is one of enormous complexity.

Take a society that in many ways, is stuck in what we would call "under-developed" to a degree that the word "stone-age" comes to mind. Then factor in one of the world's largest resource finds of the time, lots of political mangling over de-colonizing what effectively was a colony both mismanaged and unmanageable, and a border drawn by Western politicians without enquiring where ethnic and cultural factors should have led that border to be.

A few of the revolutionaries who kept the Bougainville conflict going for years

Throw in piles of weapons left over from a terrific World War II battle, a former mine worker turned passionate activist and secessionist, and a degree of geographic remoteness that makes the planet Mars look easier to reach. Even your well-travelled author has not yet managed to set foot on Bougainville!

For a change, this report won't even try to provide yet another in-depth summary or analysis of the civil war on Bougainville. If you want to look back and analyze the past, you won't suffer from a shortage of information elsewhere. The Bougainville conflict has been regurgitated in so many books, dissertations and magazine articles that an entire library could be filled with it. Everyone who wants to dig deep into the subject, should go to a library and get any of the books that I list in the appendix on page 87 of this report.

Things are now at a stage where I simply don't see much point in running you through the civil war yet another time. If you want to know how this tragedy unfolded, read the quick and dirty summary that in my first chapter. I have included just enough historic information to guide new readers through the subject and to refresh the memories of those who don't have my original 2004 Bougainville Copper report at hand.

It's simply time to move on. The Bougainville Peace Agreement was signed in 2001. Actual fighting stopped in 1997. It's now been more than 10 years since the conflict was over and more than 6 years since the start of putting together a local, semi-autonomous government. After such a long period, it's time to look forward rather than to endlessly ponder the past.

Yes, we do need to know the past to understand the present.

But we can clutch the past so tightly to our chest that it leaves our arms too full to embrace the future.

The need to be ahead of the crowd.

The primary aim of this report is to show that an entirely new perspective will soon be introduced to the discussion.

How can I know?

By sifting through vast amounts of documents covering the mining industry and its technological progress, by studying pretty much every document that Bougainville Copper has published in its 35-year history (which I accumulated by regularly scouring the Internet for these documents), and by reading between the lines and making the odd informed guess in those instances where things were not yet apparent.

All this is, may I say in all humbleness, the work that makes stock market analysis truly worthwhile.

After all, as an investor you want to be ahead of the crowd, rather than to simply sing the same tune that everyone else is singing. Who ever made money by reading the press releases put out by a company? What the stock market really is about, is to anticipate the future before the majority of investors have caught onto it.

You will see in this report that charting the likely future course of Bougainville Copper actually isn't rocket science. It can be done with a fair amount of precision once you have done all your homework. Mining isn't rocket science either, nor are any of the other aspects involved in this impending exemplary case of a company revival.

As a matter of fact, I am so confident of Bougainville Copper soon rising like a phoenix from the ashes, that I spoke to one of my close co-investors about potentially organizing a bid for the company. Jim Mellon, with whom I jointly own an investment company, had just finished a US$400m fund raising for the Chinese coal project of his company, Regent Pacific, when we did a brainstorming on whether or not to try and take matters at Bougainville Copper into our own hands.

A bit later during a wine-fuelled evening on Ibiza we eventually relinquished the idea, but simply for the reason of Rio Tinto being unlikely to agree to a sale of its stake. Had it actually been for sale, you might by now see a regulatory announcement about us wanting to take over the entire operation.

For me, it seems 99.99% certain that Rio Tinto itself will revive the Bougainville mining operation. As you will see in this report, Rio Tinto is actually sending out strong signals itself that as far as Bougainville Copper is concerned, some surprise developments are in the making. Well, Rio Tinto had a prominent role in creating some of the causes of the entire crisis. They better also help clean it up, especially as today, there is money to be made from this clean-up.

Are you surprised about the statement in the last sentence?

Yes, Rio Tinto might just be able to make a profit by organizing a clean-up of the environmental mess that it has created on Bougainville. There is now a win-win situation that enables the past to be dealt with in such a way, that Bougainville has every reason to look into the future with optimism.

Unless you happen to be a mining engineer to whom all this is a daily diet, I guarantee that there'll be plenty more surprising pieces of information in this report.

During our brainstorm on the sunny Spanish island, we realized that things are already in safe hands. Instead of swinging into action ourselves, we decided to buy a small stake for ourselves and watch the further developments unfold.

Remember where you read it first.

With this report, my personal investment website, Undervalued-Shares.com, once more sets out to prove that it is always good for unusual and surprising predictions (apart from being a useful tool for me to put my thoughts into order and to stay in touch with friends). Besides looking at this unusually complex corporate situation from an angle that no one else has taken yet, I also have no hesitation to put both my name as well as my money into the firing line.

What you will read on the ensuing 92 pages, I guarantee you won't currently be able to read anywhere else, not the least in such great detail.

It might once more end up being ridiculed for these predictions. As I already said, it has happened before. Back in 2005, a critical Australian journalist mocked the analysis of my then investment newsletter, Profit Hunter, by setting out that "Bougainville Copper will never again go into production." He even added a trace of allegation to his article, insinuating that I was probably engaging in pump-and-dump schemes.

The jury on Bougainville Copper is still out, given that the mine has not yet resumed production. Right now, however, things are looking mightily favourable for me, because back then, I reported about the share when it was trading at less than A$0.50 (a private email that I sent out to a small number of investors in December 2004 actually first mentioned the mine when it was trading at a price of A$0.25). As per yesterday, the price stood at A$1.49. That's up 198% over 3 years, showing that my analysis was much more than a short-term hype.

Latching on to investments that in the end actually work out, is what I am spending my days (and nights) on. I am into investments where my long-term predictions turn out to prove correct. Sometimes, things take

a bit longer to materialize. Back in 2005, I expected Bougainville Copper to come back into production quicker than it did. However, with a 3-year gain of 198%, I am not one to complain about the delay. If all the investments where my predictions "fail" turned out with a 198% profit, I'd be a happy man.

What's more, I have now received a second chance to invest into Bougainville Copper with a near-certainty that during the coming 6 to 12 months, the share price will see plenty of action.

There is now a catalyst in place, one that I believe is virtually guaranteeing that we will see plenty of tangible progress on the ground during the coming year. Progress towards resuming the mining operation will soon be so obvious, that even the press will not be able for much longer to deny that things are moving into the right direction.

The details about all of that, are laid out on the ensuing 92 pages.

Ignore at your own peril.

For anyone interested in buying investment at less than their intrinsic value, this report will prove a worthwhile read.

The numbers behind this investment are staggering. During the late 1960s / early 1970s, the company invested US$400m into creating Bougainville Copper's operation. In today's Dollars, that'd be about US$5.5bn in investments. A considerable part of this has gone into one of the most comprehensive exploration projects ever undertaken. At the moment, the remnants of this project are valued by the market at just US$514m.

A good part of these funds went into mining assets that in the meantime are but a heap of rust. The actual value of the company currently consists of the proven metal reserves in the ground. Despite still being a few years from being lifted up to the surface, these reserves are already tremendously valuable. Do I need to do as much as mention the two key words "China" and "strategic reserves"?

Therefore, one of the best ways to value this company is to look at the proven reserves of metal in the ground. These reserves amount to 691m tons of copper ore with a useful trace of gold in it. They'd be worth US$26.8bn if sold on the world market today. Any mining expert can confirm to you, that even just the bare reserves in the ground are worth about 10% of their eventual market price. That'd be a US$2.68bn value just for the bare metal in the ground. Currently, you can buy these reserves at a share price that is equivalent to a US$514m valuation for the entire mine.

China is among the factors reviving interest in Bougainville's mineral reserves

These comparisons are, of course, merely an initial rule-of-thumb figure. That's why I have added a much more comprehensive discounted cashflow calculation in chapter 3. Nowhere else will you find a more detailed analysis of Bougainville Copper, then in the staggering array of additional information that is contained in this report.

What's more, no matter how you look at it, Bougainville Copper is one hell of a value investment.

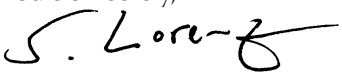
Also keep in mind, that the world isn't exactly awash with dormant mining companies. These opportunities are few and far between. I once caught a similar share, one that latched onto proven reserves in Iraq and subsequently rose 50 times in value. However, despite my extensive research in this field I could not currently name a single comparable share.

In other words, for those who are keen to buy into proven assets at a fraction of their market value, this is a report to take action upon.

For everyone else, this is simply a story to savour for its uniqueness.

Just don't come back later saying, that you hadn't been alerted to it.

Yours sincerely,



Sven Lorenz
Wearer of the Thinking Cap
Undervalued-Shares.com

P.S.: The entire subject of old companies being revived, nicely ties in with the work of a new investment company that I am setting up in Switzerland. Please see my Afterword for more information. We are actively seeking new ideas along that line, and any comment from readers is always welcome.

Executive Summary:

This photo actually shows not one but two mines (one visible, the other one invisible) – this report will give you some surprising insight into the new technology used for extending the reserves of existing mines

Looking beyond what is already known. If Benjamin Franklin is anything to go by, it is investment into knowledge that pays the highest dividends. Indeed, even for as complex a problem as Bougainville Copper, solutions can be found once the right kind of know-how is applied. Anyone wanting to truly understand Bougainville Copper, needs to delve deeply into research on a whole range of subjects; ranging from ancient mining methods to 21st century science about microbic organisms that thrive in geochemically extreme conditions. Those who manage to eventually wrest themselves free from the spellbinding effects of dusty archives and futuristic reports, should quickly notice that the likely future for Bougainville Copper is unlike anything that has ever been written down about it thus far. As a matter of fact, the future for Bougainville Copper is already here – only its details have not yet been looked at in the all-encompassing fashion of this document. The issues involved are of a tremendous complexity and the technologies that will have to be used for the mine's impending revival are relatively fresh. In other words, the entire subject isn't easily accessible and requires some serious research, which, until now no one had ever undertaken. Given that the future belongs to those who prepare for it, this reports sets out the case for an all-new look at one of the world's most unusual and special situations.

The little-known factor that is changing the equation. The world is quite a different place, than it was in 1989 when Bougainville Copper closed down its production. Not only have mineral prices moved much higher, but crucially, technology has also advanced massively during the past two decades. If there is a single determining factor that makes it necessary to re-evaluate Bougainville Copper from scratch, it's the progress made in using technology. Primarily, this refers to technology in three key areas, 1) increased efficiency in processing ore, 2) improved methods for underground mining, and 3) much changed methods for the re-processing and cleaning-up of so-called mine gangue ('tailings' or left-over rocks). Put simply, once the right technology is applied, Bougainville Copper can transform itself from former outcast to future role model of the mining industry. And it can do so in a distinctive and unexpected turnaround like few others before have achieved in this industry. Simply put, the company today has everything at its disposal that it needs, not just for reviving its existing mine, but also for further developing trail-blazing mining projects on Bougainville (potentially even going well beyond the scale of the existing Panguna mine). Surprisingly, these very developments are actually already hinted at by the company's management. What's more, they can be structured in such a way that even those who previously opposed mining on Bougainville will find it incredibly hard, or even impossible, to oppose them. Amazingly, all of these deductions can be drawn from publicly available information. Only, no one has ever bothered before to sift through the mountain of information that is necessary to properly interpret the statements that were recently put out by the management.

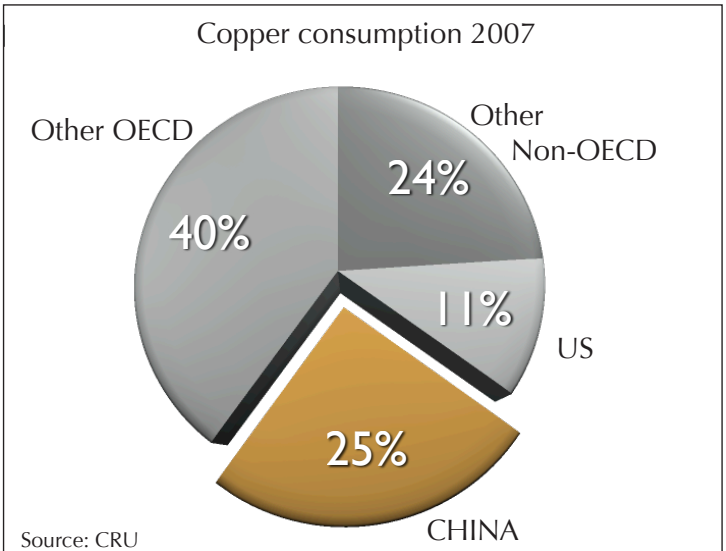
Scouring the world to find the critical evidence. This website has always taken pride in the fact that we leave no stone unturned – in what ever part of the world – to discover the information critical to making good investment decision. Quite often, evidence from one end of the world comes in handy at the other end of the globe. Aspiring polymaths will be amused to hear, that the one crucial word for evaluating the future of Bougainville's vast mineral wealth, actually comes from the Sotho language in South Africa: P-a-l-a-b-or-a, meaning 'Better than in the South', is a crucial term to know about when it comes to potentially reviving the vast Bougainville Copper mine. Another crucial hint comes from a little known, but rapidly growing, technology company in icy Canada. It is these two exemplary cases, that make the likely future of Bougainville Copper – as complex as it is – much more tangible and comprehensible.

Striking parallels, part 1. Just as is the case with Bougainville, 'Palabora' has become a term that refers both to a geographical area as well to as a copper mine. It's one, for that matter, that sets a telling example for what's to come on Bougainville. The South African Palabora Mine is majority-owned by the same mining giant, Rio Tinto, which also controls Bougainville Copper. The further similarities are nothing but startling. Both Palabora and Bougainville Copper were set up as open pit copper mines to extract copper ore that was close to the ground, both started production during the Baby Boom years after WWII, both were among the world's largest mining operations, and both were scheduled to run out of reserves sometime around the year 2000. It was only in the late 1980s that their paths went separate ways. Bougainville Copper was shut down in 1989 due to civil war, whilst Palabora continued to operate according to plan and later switched to an altogether new, unanticipated mode of operation. Palabora today has both a striking similarity to Bougainville Copper when it comes to its history, and, it having a 20-year lead-time as far as its future and the use of modern technology is concerned, means that it serves admirably as an example of what can be achieved. No two mines are ever exactly alike, but as far as an initial general analysis is concerned, there is no better a comparable than Palabora. The South African open pit copper and gold mine yields a rough map for what's ahead on Bougainville, and the fact that both mines are owned by Rio Tinto only adds to the usefulness of this comparison.

Striking parallels, part 2. At the other side of the globe, money provided by discreet Geneva bankers helped to kick-start a small revolution, which is already being felt throughout the entire mining industry (but about which little has yet been written). A solution has been found to a problem that befell Bougainville Copper as much as it befell other large copper mines too – the environmental issues brought up when dumping millions of tons of chemically treated rock and mud ('tailings') into pristine landscape. When reading some of the source material about Bougainville Copper's pollution of the Jaba river, it's easy to get the impression that back in its day, the Panguna mine was the world's worst polluter. In actual fact, plenty of other mining companies caused the very same kind of damage, and some of them on an even larger scale. The fact that Bougainville Copper wasn't the only company facing a potentially costly backlash from such behaviour, lead to the emergence of an entirely new industry. Specialized technology firms, such as Toronto-listed Bioteq (CA:BQE), have developed processes that make it viable to reprocess and clean up such tailings areas. Due to the less-developed ore processing methods of the time, many a tailings area still does contain substantial amounts of minerals. The minerals left in these tailings, combined with much higher minerals prices, have even made it possible to carry out profitable clean-ups of past environmental damage. This report's research led us onto the trail of large mining projects, where environmental legacies had been successfully tackled by reprocessing the tailings of mines. The hazardous threats were eliminated and the mine's pockets filled with a profit from reprocessing the leftover mineral deposits. Bougainville Copper doesn't even need to invent these processes now; it merely needs to look at similar programs that were carried out by other mining companies.

Not at any time since 1989 has the share price indicated so clearly that changes are afoot

Breaking with the past. Who would have expected that the company has the potential for producing much more copper from its Panguna mine, than was predicted by geologists of the time? Equally, who would have expected there would be an entirely new mining potential on Bougainville? Add to that a third factor; that of Bougainville Copper actually being able to earn revenue from carrying out just the kind of environmental clean-up that mining opponents have wanted to force by going to court? Three theses, for all of which you will find ample source material and evidence in this report. One of them has already been proven by none other than Bougainville Copper's major shareholder, Rio Tinto. A second one – is not overly difficult to figure out; once you read up on the historical exploration documents of the Panguna mine as well as some general literature on the nature of so-called porphyry ore bodies. Number three – that's where the Canadians step in. As a matter of fact, it's 'the scientist from the cold' that Rio Tinto might use for kick-starting the entire process of reviving its 53.58% subsidiary; Bougainville Copper.



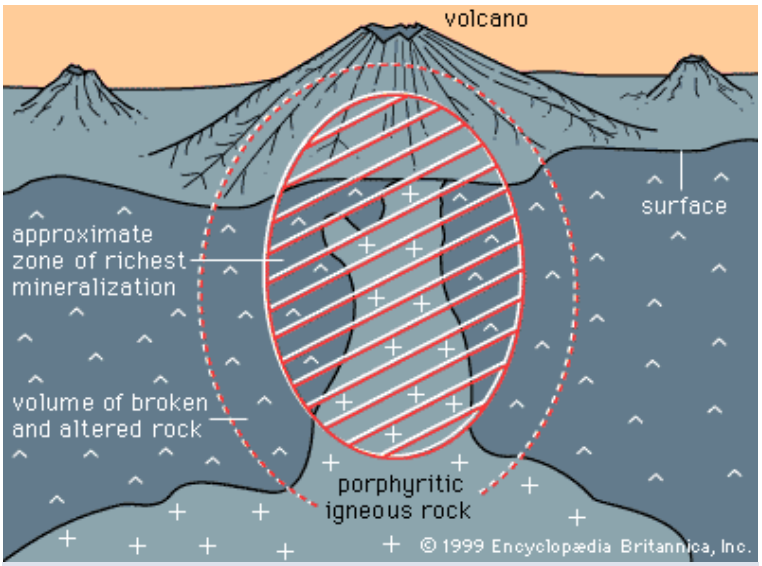
China is now consuming 25% of the world's copper production, leading to a race to secure strategic reserves

Doing good for both the island and the company. Politics is a deciding factor when it comes to carrying out any kind of mining on Bougainville. Rio Tinto has long realized that not a single shovel of additional copper will be taken from Panguna, unless the company manages to win the hearts and minds of the approximately 200,000 inhabitants of the island. One way to achieve just that would be the use of some of the company's remaining cash reserves for initiating a clean-up of the old mine's tailings area; if only by getting a feasibility study underway. Never mind, that Bougainville Copper most likely will be able to actually make money out of this. Company documents dating from 1978 show that even back then, engineers of the company investigated whether the tailings could be reprocessed in an economic way. Since then, the price for copper has risen from US$0.619/pound to currently US$3/pound, and technology for tailings reprocessing has advanced massively. It seems well worth placing a bet, that a cash-generative tailings clean-up is now both possible as well as planned. This could be with technology provided by a firm like Bioteq (there are actually numerous players in the field of mine tailings reprocessing), or it could even be an in-house process developed by Rio Tinto's own engineers (the company's engineers have a successful track record for pushing technology further). What's certain, is that Bougainville Copper now has within its reach, the long-awaited chance to achieve a great leap forward on Bougainville. As this report will show, after two decades of standstill, finally, virtually everyone's interest is aligned.

Innovation as a driver for societal and economic change. Hidden potential and unused opportunities, is the phrase that probably best describes Bougainville Copper in its current state. Another opportunity (and one, incidentally, that only fools would believe Rio Tinto does not already have on its radar screen), is the potential for modelling the future of mining on Bougainville after its successful in-house model, Palabora. Taking an existing open pit mine a step further, is the key. There is a natural limit up to what depth open-pit mines can exploit an ore body. Many an industry research report describes how the rapid depletion of the world's low-laying deposits is currently haunting the entire copper industry. There are preparations being made at copper mining companies around the world, to gradually shift from open put mines to underground mining; simply because the world is running out of locations where open pit mining can be done. If a copper ore body extends below the lowest point of an open pit mine, a switch from open pit mining to underground mining can often be done. Rio Tinto's test case was Palabora, which during the mid-1990s neared the limits of the reserves that could be produced using open pit mining. Rio Tinto subsequently invested heavily into improving an old method of underground mining; one that allowed new life to be breathed back into the dying mine. So called 'block cave mining' is a method that not only allows access to reach deeper-laying mineral deposits but it is also, for a variety of reasons, environmentally much less destructive than digging vast holes in the ground. As a further plus, it has recently become cost-efficient; thanks to further technological progress. The Palabora mine's life was extended from 0 years to 23

years, by establishing an underground mine underneath the existing open pit mine. By doing so, Rio Tinto created one of the world's most productive underground mines. In its recent investor presentation, Rio Tinto declared itself to have a "leading position" in technology used for block cave mining.

What is the underground mining potential on Bougainville? The ore body of the Panguna mine is a so-called porphyry deposit. In somewhat simplified terms, such ore bodies are best comparable to a tree. The existing Panguna open pit mine actually only reached into the branches of such a porphyry deposit. Typically, porphyry deposits have much larger stems further below. Indeed, a 1973 publication put out by Bougainville Copper states: "The mineralization continues to an unknown depth beneath the bottom of the planned open cut." Is Bougainville Copper the next case where Rio Tinto shifts from open pit mining to exploiting much deeper copper deposits? A 1991 document written by a previous CEO of Bougainville Copper, strongly hinted at there being more copper reserves than previously thought, provided that an economic way is found to exploit lower grade ore: "The mineralization in the Panguna deposit does not have definite geological boundaries, but extends, albeit at lower grades, beyond the limits of the pit as initially planned. The viable utilisation of these areas of lower grade mineralization within the resource is dependent on the value of the metal content (*i.e. on the world market price for copper and gold, SL*) and the economies of extractions (*i.e. on the efficiency provided by new technology, SL*)." There is even a mention on the current company website - of there being more potential to Panguna, than just the known proven reserves: "Knowledge gained from (further) exploration would have allowed development options to be considered which may have included consideration of the continuity of operations at Panguna (*beyond the year 2000 when the existing open pit mine was originally scheduled to be depleted, SL*)." It could well turn out, that expanding the Panguna mine beyond the boundaries of the existing open pit mine is not just an option, but an economic conditio sine qua non. In other words, a seamless shift of the Panguna mine from open pit mining to underground mining could be imperative for any kind of mining to be restarted on Bougainville. That's because the existing open pit mine's remaining life of about 10-15 years, might not be enough to convince banks and investors to finance the mine's reopening – an equation that would look entirely different if an additional underground operation extended the Panguna mine's life to anywhere between 30 and 50 years.



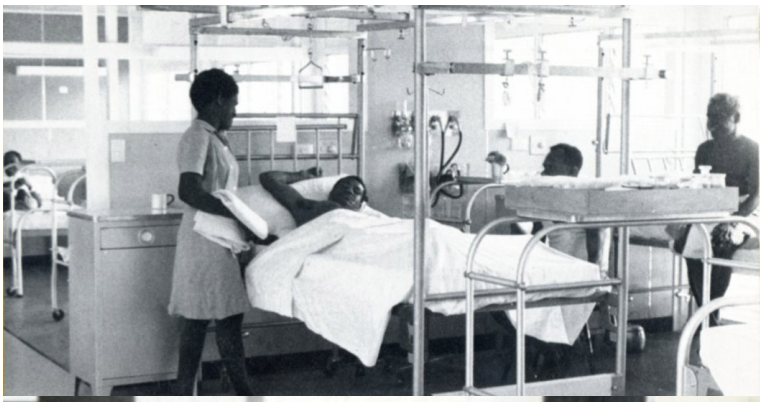
This report will explain the characteristics of so-called porphyry copper and gold deposits in laymen's terms and show why yet more copper lies underneath the existing open pit mine

From the bowels of a German archive. There is more to Bougainville, than just the Panguna deposit. Within mineral-rich Papua New Guinea, Bougainville is an exceptionally mineral-rich area – dubbed by some to be a geologist's "Treasure Island". During the 1980s, German geologists scoured the island for further economically viable mineral deposits. The *Geologisches Institut* in Hanover contains in excess of 10,000 pages of research on Bougainville; much more than would usually be available about a far-away island in as remote a country as Papua New Guinea. The documents, which can only be accessed by vetted experts and which I had accessed by a geologist, contain hints that at least one of the seven exploration areas owned by Bougainville Copper – the Atamo area just a few miles to the North-West of the Panguna mine – has the same or even a larger resource potential than the original mine. The company owns a whole range of such exploration areas.

Back to its role as role model? Bougainville Copper is a politically sensitive name, and the company is not without some blame for the situation that it ended up in. However, it did actually hold a role as exemplary member of the mining community during a good part of its life. Rio Tinto's 1969 decision to give a 20% equity stake in its subsidiary to the national government of Papua New Guinea, was unprecedented at the time and to the best of my knowledge has since then not been matched by any major mining company

in the world (the equity stake was in addition to paying more than 50% of the mine's revenue to the government, as part of the usual mining concession fees). The same held true for the company's efforts on behalf of the local community, training and employing local staff and help in setting up small businesses run by locals (see some of the historic source material provided in the annexe). Bougainville Copper needs to regain such goodwill, and it will only be able to do so by taking a radically new course. During the 1970s and 1980s the Panguna mine was one of the world's largest and most cost efficient mining projects, with gold at times yielding almost as much revenue as its production of copper (in 1980 gold contributed 46% of the company's revenue). There is an opportunity for Rio Tinto to take the operation back to its old level and beyond – in terms of size, efficiency and sustainability. The time for crucial decisions is now.

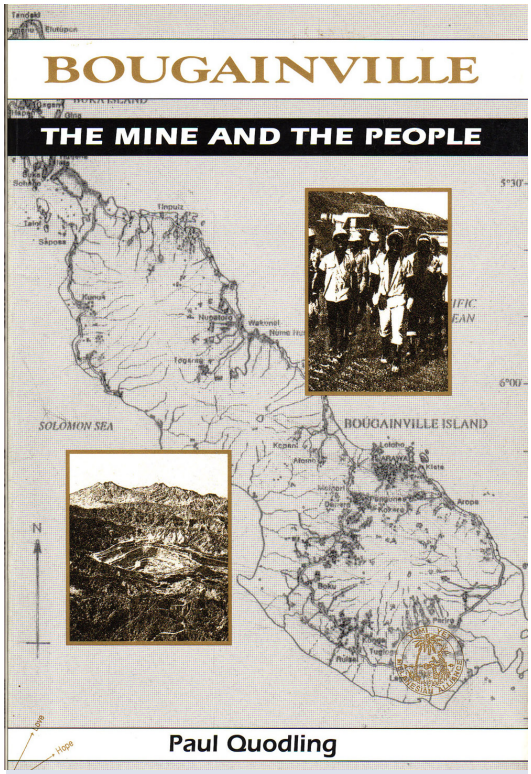
No action without an all-round solution for all stakeholders. The company's management stated in May 2007, that it is aiming for "a comprehensive 3 year plan for returning to mining". It added that under no circumstances does it want to do so in a "piecemeal fashion". The message could not be clearer, and it is actually one that is dictated by economic necessities as was seen above. Bougainville Copper will only return to Bougainville, if it can carry out both mining on the existing mine premises, as well as exploration in the various exploration areas designated for these purposes. In an industry increasingly driven by economies of scale, mining on Bougainville will have to be done in a way that makes it competitive and sustainable. However, before the company is able to return to the island, it will have to find a solution to the past problems that were plaguing its old operation. It seems imperative for Bougainville Copper to come forward with a clean-up plan for the tailings area, as one of the very first steps to be taken when re-entering Bougainville. As a matter of fact, the very first return of Bougainville Copper mining engineers should not be for viewing the Panguna mine, but for assessing the tailings area. Equally, it would seem sensible to gradually (e.g. after a change-over period) switch the Panguna mine from open pit mining to the less intrusive and environmentally less damaging block cave underground mining method, or to pursue a similar method of a yet to be determined sort. Rio Tinto has already employed the services of an Australian scientist who has helped develop methods for "no harm mining" in environmentally sensitive areas. It's also likely, that Bougainville Copper has already gained access to the vast range of technological innovations that are harboured by Rio Tinto, such as new bioleaching processes that allow extraction of low-grade mineral concentrations from rock in a much more efficient way. All these developments open up entirely new ways for bringing the Bougainville crisis to an end once and for all – for both the locals, and the company.



Back in its days, Bougainville Copper was actually in many ways a model employer and mine operator (when judged by the standards of its time; which since then have of course evolved further)

Why Bougainville needs mining. Any suggestion to have Bougainville return to mining, is generally met by the press with both scepticism and criticism. Yet, the May 2007 establishing of the Bougainville Mineral Resources Authority (MRA) is pointing very clearly in the direction of mining being resumed on Bougainville, sooner rather than later. The reasons that the local authorities have recently started to push for a return to mining, are rooted in the political process that the island is going through. The now semi-autonomous region of Bougainville wants to gain full independence between 2011 and 2016. However, in its current financial state, it seems unlikely that Papua New Guinea would release the island into independence. Based on figures taken from the 2006 Papua New Guinea Year Book, well over 95% of the 2006 government budget of the Autonomous Government of Bougainville consisted of external aid. There are probably few other governments on earth, which depend on outside money to such an extreme degree. A financially unsound Bougainville would run the risk of becoming a haven for terrorists and criminal activity, and thus will not be released into independence in the first place. The Mineral Resources Authority, coincidentally, was created in the same month that Bougainville Copper announced its intention to return to mining and exploration on Bougainville. The MRA will have to take over the existing agreements between Bougainville Copper and the Papua New Guinea mining ministry. This includes the leases for all promising mining sites on Bougainville, which were originally given to the company with options to renew them all the way up to 2055. Anything but upholding these leases would lead to year-long delays due to lawsuits, an international mining community shunning Bougainville for fear of a lack of property rights, and anyone but rogue mining companies entering the arena. Overall, the much-feared issue of property rights seems to be much less of an issue than it is often thought to be. The Sydney-based Pacific Islands Trade and Investment Commission states on its website: "Investing in Bougainville: The Autonomous Government of Bougainville (AGB) is still developing its own economic policy and until the ABG actually draws down the additional powers Papua New Guinea investment laws and policies still apply to potential investors. Property rights are guaranteed under PNG Papua New Guinea just as they will be under Bougainville laws and policies when introduced." (http://www.pitic.org.au/content/view/171/118/) Indeed, allowing Bougainville Copper to develop its existing mine as well as the various exploration sites that it owns, is the only viable solution for Bougainville to reach its decade-long goal of full independence without risking a delay of another generation. What's more, this can now be done in a fashion that truly minimizes the negative impact on the island. This is also the reason, that a delegation of the recently created Bougainville Mineral Resources Authority came back with a positive attitude towards restarting mining on Bougainville after visiting the environmentally sound Nusa Tenggara copper and gold mine in Indonesia: "Members of the delegation said they were impressed with Newmont's operations ... as they saw many things that were completely opposite to what they had experienced when the Panguna mine was operating." The fact that the Chairman of the new Bougainville Mineral Resources Authority is a former board member of Bougainville Copper, should bolster the talks' outcome by making them much more focussed.

A mining share valued on the base of past politics. Technological progress and breakthroughs in environmental protection, are not what first springs to mind when speaking of Bougainville Copper. If anything, the decade-long focus on the crisis has led to the company name invoking memories of civil war, political scandal and large-scale destruction. Long-standing investors remember it as the mining share that fell from stardom to oblivion, loosing 98% of its value before remaining virtually flat for longer than any sane investor would have ever held on to it. However, with nothing much good coming to mind when speaking about Bougainville, it is also immediately clear why the share is still trading at a price that is just a fraction of its intrinsic value. The market has only just now started to factor in that Bougainville Copper is poised to soon launch into an entirely different era. This new phase has the potential to transform the company from pariah to model citizen of the mining world – whilst simultaneously becoming a text-book example for the value creation potential that's unleashed when finding a creative new use for old, written-off assets.



The biography of the long-time CEO of Bougainville Copper yields interesting insights, as do a lot of other historic documents used for compiling this in-depth report

The exceptional case of proven assets trading at a vast discount. When the mine shut, 691m tons of ore yielding 0.4% copper and 0.47 grams of gold per ton were left in the existing mine. The remaining life of the mine was 10 to 15 years. It is almost certain, that the company's mineable reserves are actually much higher once the higher copper price and new technologies are taken into consideration. However, even if just using the historic proven reserves, it turns out that Bougainville Copper is the exceptional case of a mining share trading at a vast discount to its underlying assets. A valuation of the bare proven reserves in the ground (based on an accepted rule-of-thumb valuation method often used in the mining industry), leads to a share price target of about A$7.77. For the purpose of this report, this very initial valuation was taken a step further by developing a further set of valuation models. The valuation chapter starting on page 65 includes a sensitivity analysis, showing how the value of the existing, proven ore body changes with each fall or rise in commodities prices. A yet more in-depth valuation model, which is based on a discounted cashflow model, also shows the value creation potential of putting an underground mine underneath the existing open pit mine. Also included, is an overview of the potential arising from opening a second mining site on Bougainville. The most likely candidate for such a move, would be the Atamo site to the North-West of Panguna. Existing geological surveys indicate that Atamo has about the same reserve potential as Panguna. Bougainville Copper seems to have enough resource potential, to continue mining on Bougainville for at least another 50 years, and possibly even on a much larger scale than was previously done (whilst causing only a fraction of the past environmental damage, if the right mining technology is used). The share price would have to rise to about 5.2 times today's level, to accurately reflect just the existing proven reserves. Longer-term, what is so far known about the geological structure of Bougainville makes a share price target of up to A$31 look realistic, even when factoring in the financing cost of these new projects. The one thing that is for sure, is that Bougainville Copper is currently valued at just a fraction of the value of the island's likely potential for mining. Unusually enough, Bougainville Copper is a value play with what seems to be a very limited downside and a potentially huge upside.

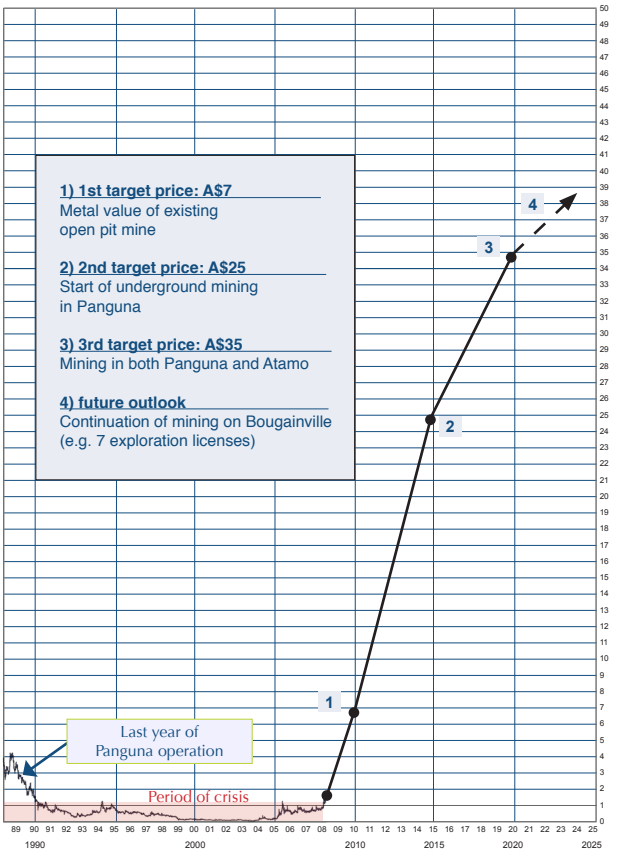
When will Rio Tinto show its cards? The recent and still ongoing take-over overtures for Rio Tinto, can only speed up the revival of Bougainville Copper. The Australian mining giant had so far always erred on the side of being too conservative when communicating its assets. In its defence against BHP Biliton, it has now launched a charm offensive to show investors just how considerable its potential for future value creation is. Bougainville Copper has enough potential, to make a difference even on Rio Tinto's vast balance sheet. Also, Rio Tinto has made a clear statement about its long-term growth projections for the copper market. The Rio Tinto-appointed Chairman of Bougainville Copper had already switched to a more forward-looking reporting in May 2007, and 2008 should bring much more concrete progress in this matter. Not developing Bougainville Copper, would entirely go against the spirit of Rio Tinto's new strategy for maximizing shareholder value.

Valuation based on "10%-rule" (AUD per share ***)			
Based on reserves as published in 1989	Price of copper and gold	*Based on reserves as of 1989 + upwards revision***	*Reserves as of 1989 + upwards revision + "Atamo" potential****
9.32 AUD	+20%	18.64 AUD	37.28 AUD
8.94 AUD	+15%	17.86 AUD	35.73 AUD
8.55 AUD	+10%	17.08 AUD	34.18 AUD
8.16 AUD	+5%	16.31 AUD	32.62 AUD
7.77 AUD	**base case***	**15.53 AUD**	31.07 AUD
7.38 AUD	-5%	14.75 AUD	29.52 AUD
6.99 AUD	-10%	13.98 AUD	27.96 AUD
6.60 AUD	-15%	13.20 AUD	26.41 AUD
6.22 AUD	-20%	12.42 AUD	24.86 AUD

* market prices as of 12/06/07
** upwards revision: reserves as of 1989 x 2 ("reserves doubled")
*** USD/AUD exchange rate: 1.149
**** "Atamo" potential: Panguna reserves as of 1989 + upwards revision + 100%
Note: Atamo = "new Panguna"

For details and explanation as well as a discounted cashflow model see chapter 3 (page 65).

The jet-black Sheiks of the Pacific Rim? Commonly known only for a civil war and desperate poverty, Bougainville is potentially one of the world's richest places. Its minerals wealth is as large, as its population of 200,000 is small. Only, this wealth has yet to be unlocked – and mining is the key to the treasure chest. Independence is already clearly marked for the island, and there is now a window of opportunity for creating a turnaround unlike few other crisis-ridden places on earth have ever experienced. Bougainville has virtually no foreign debt, a young and growing population, as well as vast tourism potential. Over the course of the next 10-20 years, the formerly war-torn island could be transformed into a state resembling one of the Mid-Eastern oil states or the Sultanate of Brunei. That is, if it continues on the path towards restarting mining in a responsible, well-managed fashion. For Bougainvilleans, there is now a historic chance to negotiate an equity stake in Bougainville Copper (as set out in a proposal by the Bougainvillean Land Owner's Association; see page 84 of this report's appendix) and thus profit from mining on a whole number of levels – ranging from the provision of local jobs to dividends from owning a stake.



Undervalued-Shares.com provides the compass for predicting the future of Bougainville Copper (for a full-size version of this chart see page 75)

One generation's Waterloo, another generation's El Dorado? The share price having recently regained a fair bit of ground, signals that for the first time in nearly two decades, some major progress is in the making. However, even after the recent rise, the share price is still at just 27% of its pre-crisis level (a time when copper was trading at less than a third of what it is trading at today). For the first time, a comprehensive valuation model is available for the mine. The valuation chapter on page 65 sets out all the available historic clues about the mine's value, the result of a discounted cash-flow model, as well as a number of plausibility tests and additional factors. The model yields, that even if just valuing the existing proven reserves in the ground, Bougainville Copper shares should trade 5.2 times higher than today. A return to actually producing metals, a possible extension into underground mining underneath the Panguna mine, and the exploration as well as subsequent mining of other sites on the island - are all factors that could drive the intrinsic value of the share yet higher. Longer-term, the share has the potential to surge in value by about 20 times and more.

Name	Bougainville Copper Ltd.
Major shareholders	Rio Tinto (53.58%), Papua New Guinea (19.06%), free float (27.36%, of which >5% is represented through the European Shareholders of Bougainville Copper)
Stock markets	Sydney (Ordinary Shares), Berlin, Frankfurt, Munich, Stuttgart (Ordinary Shares and ADRs) US OTC Market (ADRs)
Ticker symbols	Sydney: "BOC" Germany: WKN 852 652 (Ordinary Shares) and WKN 867 948 (ADRs) USA: "BOCOF" (Ordinary Shares) and "BOCOY" (ADRs)
Outstanding shares:	401,062,500
Share Price:	A$1.49
Market Cap	A$597m
Market Cap of Free Float	A$163m
Company website	www.bougainvillecopper.com.pg

Quite possibly the last chance to be ahead of the crowd. The single most reliable factor indicating that big

changes are afoot, is the stock market. The share price has already started to move and the chart has broken through an 18-year trend line. Now that rebels are not blocking the mine any longer, recent (informally transmitted) information from Bougainville, speaks of Bougainville Copper and the landowners nearing an initial agreement towards having the mine site cleared of debris. The year 2008 carries the prospect of actual solutions being found to the long-standing problems of Bougainville and Bougainville Copper. If the best way to predict the future is to invent it, then it's time to think on a truly big scale. Big, not just in the sense of mining, but in terms of finding an all-encompassing and standard-setting array of solutions for the island. This could then become the catalyst for a revaluation of Bougainville Copper shares. The story driving this share is likely to unfold in several stages, as illustratively depicted in the forward-looking chart. Given the possibilities and developments explained in this report, as well as the seemingly much-progressed behind the scenes talks, it might just be that William Gibbson's famous quote applies to Bougainville Copper: "The future is already here. It's just not widely distributed yet."

Contents

I. Bougainville:
An island of tribes, minerals and political conflict

Bougainville is a 10,000 square kilometre island on the Eastern edge of Papua New Guinea (just North of Australia)

Robert Young Pelton has carved out his very own niche in travel writing. Once he year, he publishes "*The World's Most Dangerous Places*"; a guide to war zones and other disaster areas. Previously variously employed as a lumberjack, a fruit picker, and a blaster, the multi-facetted Pelton aims to penetrate the least-known corners of the world in order to understand the motivation of the people who live there. By writing about it, the clever globetrotter managed to turn this passion into a profession.

For an outsider's view of Bougainville, his book "*The Hunter, the Hammer, and Heaven – Journeys to three worlds gone mad*", is one of the most insightful and gripping accounts available. The book chronicles his two-year odyssey "to meet one of the most elusive rebel leaders in the world – an enigmatic man called Francis Ona, who has survived numerous assassination attempts and who threatens to kill any white man who sets foot on his tiny island in the South Pacific."

Ona was, until fairly recently, one of the key figures in the history of Bougainville. He also helped produce evidence (albeit involuntarily) that internet sources can provide investors with some hardnosed information… but more on that later.

A tiny island at the end of the world.

As much as there are vastly differing versions of Bougainville's conflict, the bare facts are indisputable.

Bougainville is an island of 10,000 square kilometres in size (roughly equivalent to the size of Cyprus) and located in the Bismarck Archipelago in the South Pacific. It is sandwiched between the South-Eastern part of Papua New Guinea and the Northern Solomon Islands. The island has steep mountains, massive boulders, a smoking volcano, crystal-clear waterfalls, coral reefs and sheltered bays.

If ever there was a tropical paradise, from the outside view at least, this could certainly have been it.

History had it though, that this tropical idyll was to become the place of a political conflict that dragged on for over 40 years, albeit the clashes changing in intensity. The conflict's aftermath can still be felt on Bougainville today, although there are now definitely signs of the island's general situation improving with every passing year.

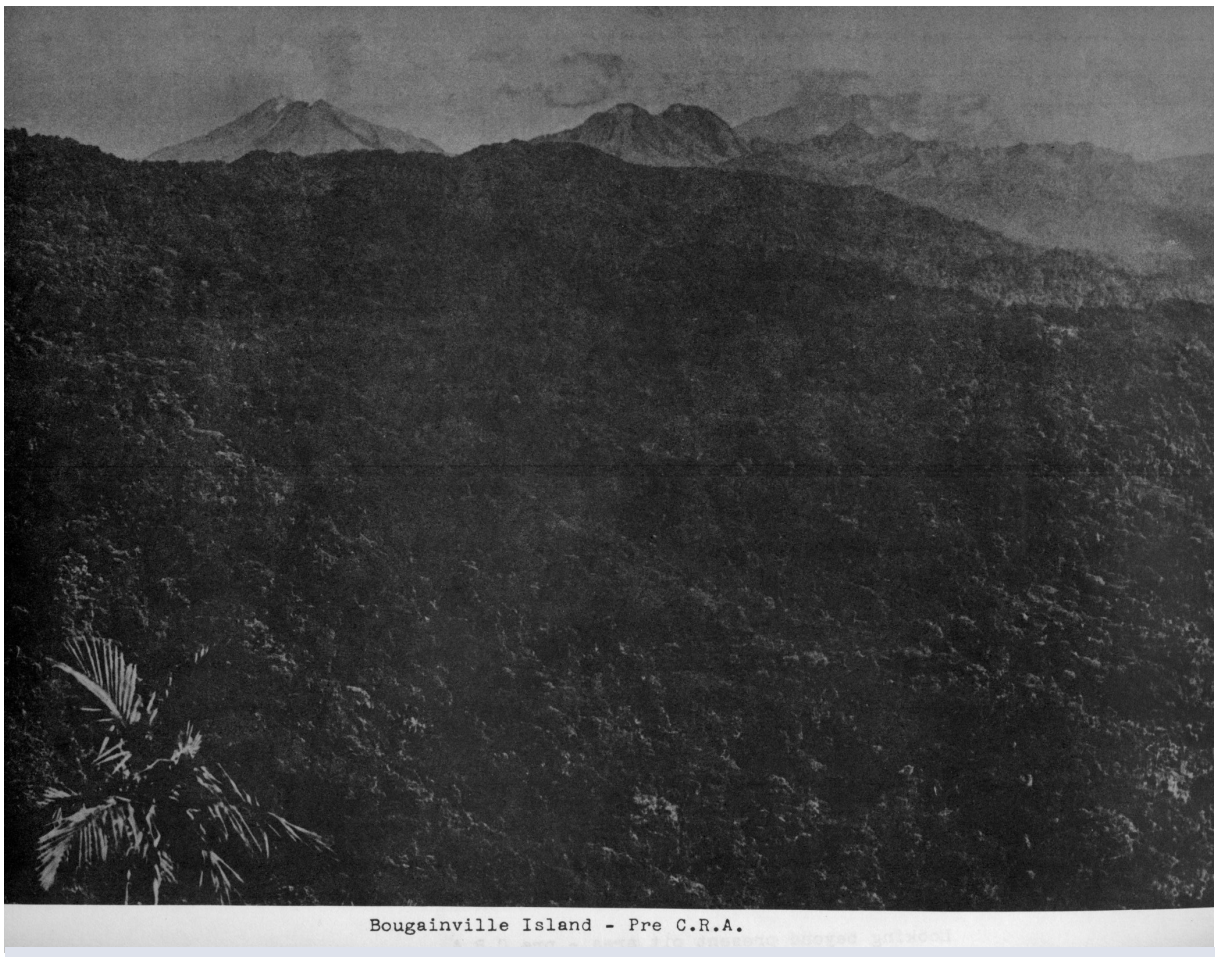
In order to understand the decade-long troubles of Bougainville, it's important to know, that ethnically the island's people were always much closer to the Solomon Islands' peoples than they were to those of Papua New Guinea. A brief glance at the map reveals as much. However, when drawing up borders, the area's former colonial powers had other motives at play, and taking the region's ethnicities into consideration wasn't a priority.

Between 1884 and 1950, Bougainville had endured eight foreign governments. After WW I, Australia took over the task of administering Papua New Guinea; the former British colony. As part of the package, the Australians also inherited Bougainville. Hence from that time, Bougainville's fate became inextricably intertwined with Papua New Guinea.

The fabled island paradise of Papua New Guinea

Taking over the day-to-day management of Papua New Guinea was something that the Australians soon came to regret. The neighbouring territory was flawed, with a virtually endless array of problems - and Australia ended up footing the bill for many of them.

After decades of the territory being nothing much but a drag on Australia's finances, a solution was eventually sought to release Papua New Guinea into independence. That's when a financial need arose to economically and financially integrate Bougainville into Papua New Guinea. More so than had previously been the case in the loosely connected cluster of Pacific islands. Making the mineral riches of Bougainville pay for Papua New Guinea's independence was a key part in a strategy to properly launch Papua New Guinea into independence. It was also the key factor in causing the subsequent conflict.



One of the very first photographs taken of the area around the mine (probably around 1920)

It was on the tiny and previously unheard of island, that one of the entire region's richest mineral finds had been made. Australia wanted to set up a mining operation on Bougainville - one that would pay ample mining fees to the national government of Papua New Guinea. These fees were earmarked for financing Papua New Guinea's strides towards independence.

What had been a drag on Australia's finances, became one that was shouldered by Bougainville. The island was effectively singled out to pay for the bills run up by the newly independent Papua New Guinea.

A few facts and figures about Bougainville.

Bougainville was supposed to be a financial relief for the newly created national government of Papua New Guinea. It did achieve just that, if only temporarily. During the years after it opened, the Bougainville Copper mine was contributing a bigger part of Papua New Guinea's government income than any other private operation in the country.

Bougainville's mineral wealth had indeed been the financial catalyst for Papua New Guinea's independence. Unfortunately, the mine's large success in contributing money to Papua New Guinea's government also turned into one of the main reasons why civil war broke out on Bougainville.

There have always been plenty media reports claiming that "the mine" was to blame for the eventual outbreak of civil war. This is a statement that was made with a rather broad stroke of the brush, probably with the aim to condense an extremely complex story into one that fitted into a newspaper headline. A closer analysis shows, that it's not all that easy to simply lay all the blame at the feet of the mining company. There is good reason to say, that the actual root of all these problems was the fact that Bougainville's separate identity had been brushed aside by politicians.

The common perception in the West has for a long time been, that the mining company exploited the locals, and that the subjugated locals subsequently fought back against the big bad company. However, upon closer inspection it is revealed that the causes of the civil war go much deeper than that.

YouTube features several free videos covering the Bougainville conflict (http://www.youtube.com)

Some figures easily show why.

At the time, Bougainville had about 2% of the population of Papua New Guinea. However, over the course of 17 years of mining operations, some 58.4% of the mine's revenues went to the national government of Papua New Guinea. Just 4.8% of the mine's revenue went to the provincial government of Bougainville, and a miniscule 0.2% of the mine's revenue went to those who were affected the most by the mine – the land owners around the mining site.

Given these figures, it's quite clear that Bougainvilleans felt betrayed and left out by the mine. Having someone dig up your back garden is one thing, and seeing how virtually all of the proceeds gained from the treasure hunt in your garden end up in someone else's pockets, is quite another.

Whether the mining company was to blame for the internal distribution of the mine's fees, is an entirely different matter. Whilst often blamed for the subsequent conflict with landowners, it is also often forgotten that back in the late 1960s, a Papua New Guinean law prevented the mining company from negotiating directly with the landowners. All agreements between landowners and the mining company were actually negotiated by the national government of Papua New Guinea.

In an effort to feed some of the mine's economic benefits back into the local economy, the mining company had actually made great efforts to train and hire local Bougainvilleans for as many jobs as possible. It had even set up a trust to help locals set up their own businesses (a little-known activity that Bougainville Copper still carries out today, through the still-existing trust). It'd be clearly wrong to say that Bougainville Copper did not recognize the justified ire of the provincial government and the landowners as a potentially explosive issue. As a matter of fact, it was in a 1973 report by the mining company itself, that the very risk of a violent secession movement was anticipated for this very reason.

At the time, the mining company believed that it was not for them to get involved in the internal issues of the country. Instead, within the context of Bougainville being a rightful part of Papua New Guinea, it hired sociologists and anthropologists to establish what they believed were the best possible working relationships with the indigenous Bougainvilleans.

There are numerous references in literature that Bougainville Copper's agreements with the locals, however flawed they were, were in reality the most progressive that had ever been used at the time. This includes the 20% equity stake that Conzinc Riotinto of Australia (CRA, the legal predecessor of Rio Tinto) had given to the government of Papua New Guinea for a token sum, and one that was even paid for by the Australian government. Such a move had previously been unprecedented.

Also, even the negotiations over the use of land were much more advanced, than elsewhere in the world. It was the first time ever, that a multinational mine moved into a third world country, and the land owners were compensated not on the basis of the value of the crop that had been grown on the land, but on the basis of the suitability of the land for the purpose for which the company required it. An excellent account of the negotiations with local land-owners is contained in a very rare and out-of-print book study by the Macmillan Brown Centre for Pacific Studies (a think tank that was founded in 1998 through a bequest made by the late Professor John Macmillan Browen, a distinguished Pacific Scholar). He also mentions that some of the land owners received shares in Bougainville Copper, again a first in the industry. In July 1971, The *New York Times* also reported, "the natives of Bougainville were offered shares in the rich copper mining development."

The same 1992 study also concluded, "The violence on Bougainville during 1988-91, which caused the cessation of the copper mine, is linked more with the demands by nationalists for secession than with the mine."

Needless to say, with very few exceptions, none of this ever made it into the mainstream media. One needs to sift through academic publications from Australia to find out about most of these finer points.

The list of misconceptions about the war on Bougainville is a long one, if only because some issues were much too complex for the media to report them in a fair and balanced way.

Other pieces of information that were printed or aired, simply weren't accurate to begin with. E.g., various media reports claimed at the time that the mine's opening led to "large-scale resettlements" of locals. In actual fact, just over 100 households had to be resettled (amounting to about 0.4% of the island's population at the time - or 1 out of every 250 inhabitants). The mine was in a fairly remote area of the island and only a small part of the island's population was directly affected.

Whilst it'd be wrong to belittle potential mistakes made during the resettlement process, it also goes to show, that some aspects need to be put into perspective using precise figures.

It is in this 400 page report dating 1973, that shareholders can read-up on a staggering array of facts about their mine

Some further facts about the mine.

Bougainville Copper began production of copper and gold on April 1st 1972, some eight years after the first geologists had landed on the island. The mine quickly became a superlative in more ways than one.

A cavity, that at one stage was six kilometres wide and half a kilometre deep, this was one of the largest man-made holes ever to have been dug. Crossing the mine, at its central point, would have required two Golden Gate bridges to be laid side by side. The earth moved to dig the hole, could have been used to fill 125,000 houses from top to bottom.

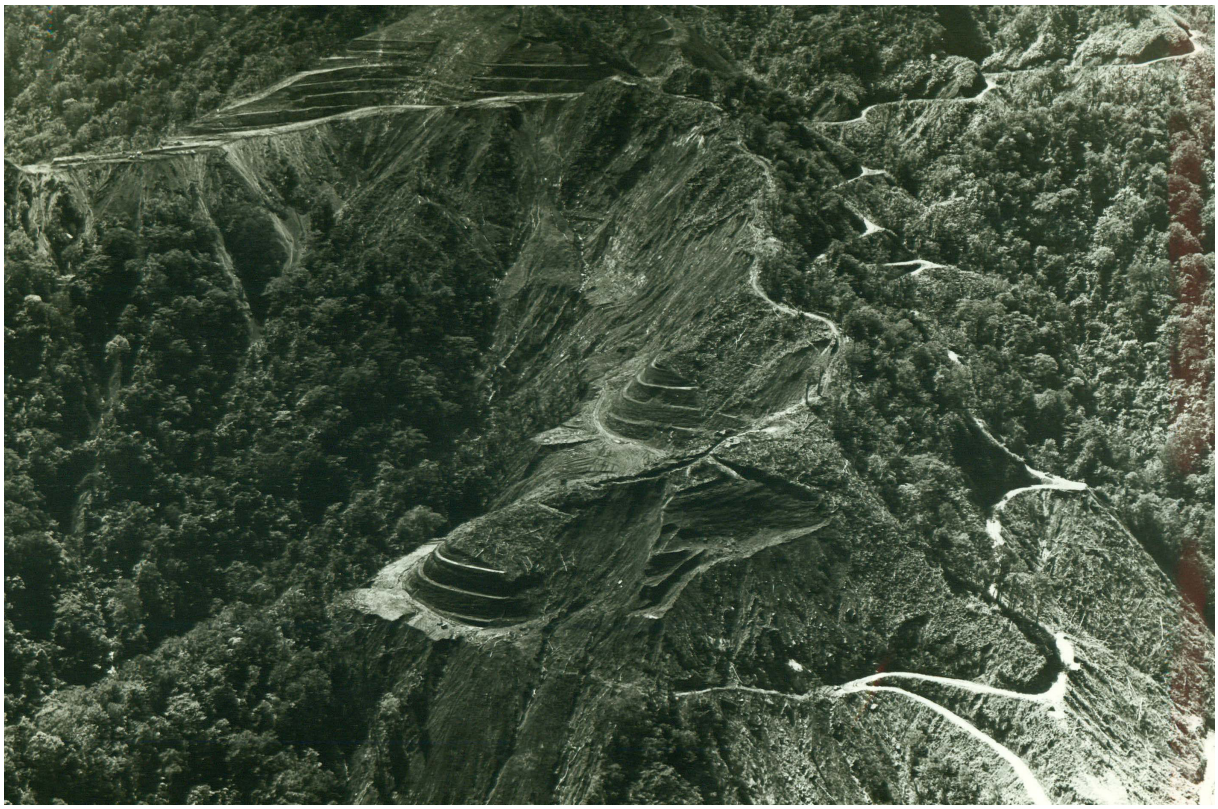
In its heydays, the mine's contribution was 44% of Papua New Guinea's exports and 17% of the country's national government budget. It was the largest mining project in the world in terms of start-up tonnage. The steam power station constructed to produce electricity for the mine had almost twice the capacity of all existing electricity plants in Papua New Guinea taken together.

As non-political author Pelton described it, "Bougainville's people were the most educated and sophisticated of all the (Papua New Guinean) islanders. The roads were paved, money flowed and it was the last place anyone would expect a war to break out."

A 1980s tourism campaign described Papua New Guinea as "Country of the Unexpected", and on Bougainville the unexpected did happen. It wasn't just unexpected - it also was (and remains to this day) an extremely complex crisis.

The Australian Minister, the late Sir Paul Hasluck, did the most to shape Papua New Guinea. He wrote in his book that Papua New Guinea "was a task for Sisyphys", the Greek character who pushed the boulder to the top of the hill only to have it roll down the other side, from where he had to push it up again. The country is home to 867 languages, and up until the 1970s, new tribes that had never been in contact with the outside world were still being discovered.

Bougainville was a particularly complex case within a country that itself is known for enormous complexity. No one will ever be able to claim that one or the other factor was the definitive reason for the civil war and all that came with it. There was a multitude of inter-connected factors; ranging from misallocation of benefits, government neglect, grief over land-loss, inter-generational animosity, anger at environmental damage done by the mine, and perceived historical wrong – to name just a few.



Mountains had to be moved – quite literally – to build the massive copper mine

Each and every single one of these factors would warrant a book for itself. In retrospect, it can probably best be described as a combination of unfortunate events and chain effects - that eventually brought the house down.

In the midst of it all, stood Bougainville Copper. The company came to the island to produce copper and gold, but in the end found itself mired in a political situation that it couldn't have possibly solved, even if it had resorted to meddling with Papua New Guinea's internal politics.

As the company said in one of its publications back in 1973: "As in all developing countries the leaders face dilemmas to which there are no immediate solutions."

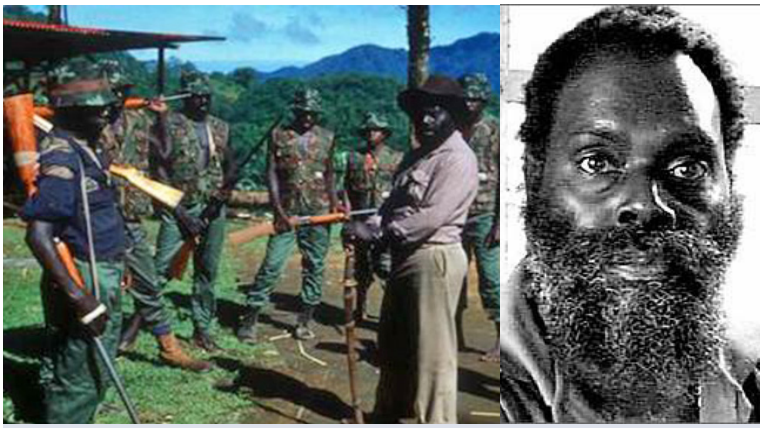
The shareholders of Bougainville Copper had to learn, that a lack of immediate solutions could lead to as much as an 18-year stand still.

Meet Francis Ona

Chief among the problems on Bougainville, was a former mine surveyor and truck driver going by the name of Francis Ona.

It was in 1989 that Ona herded a group of young islanders around himself, and used dynamite stolen from the mine to blow up electricity pylons. His violent actions brought to the mine to a halt, simply because the mining company could not any longer guarantee the safety of its employees.

Thus, the mine was shut down. Papua New Guinea sent national troops to Bougainville to bring the violence to an end, but this only led to further violence and a full-out civil war that mostly took place in the impenetrable jungle areas of the island.



Francis Ona, mountain rebel d'extraordinaire (RIP)

Even after the ensuing 9-year long guerrilla war was declared over in 1997, Ona remained in the trenches. Hiding out in the thick jungle around the mine, he kept a small but heavily armed group of followers and bodyguards. Calling himself a King and claiming the right to govern all of Bougainville, in local politics he remained a powerful, if eccentric factor. Most Bougainvilleans had, in the meantime, turned-in their weapons - which is why Onas' remaining stockpile of guns was all the more a force to be reckoned with.

During the subsequent reconciliation process on Bougainville, Ona's presence proved to be a major stumbling block. One of the roadblocks to peace came in the form of just that – a road block.
To be precise, a roadblock set up near the Panguna mine by Francis Ona's men, (including some child soldiers). Anyone who dared to venture near the mine, risked getting shot. That's why during all these years since peace was declared, not a single official from Bougainville Copper has yet made his way to the company's dormant mining site.

Ona proved an elusive, incalculable and at times, odd character. Just as odd, was his sudden demise in May 2005, when he died at the comparatively young age of 52. The reason for his death was officially given as malaria. However, there have always been rumours that quite a few people on Bougainville – even some of his fellow rebels – had simply grown tired of a man who promised a lot, but delivered little in tangible benefits other than the adventure of being a mountain rebel.

Funnily enough, there is a case showing that even Ona fell afoul of the complexity of Bougainvillean politics. After choosing "Mekamui" as the name of his Kingdom, he found out that it has more than one meaning. With 19 languages being spoken on Bougainville, it meant "Sacred Land" in one language, but it was an incredible obscenity in another one of the local languages.

What is also little-known, is that Ona had been one of the locals to profit from the mine. His family was one of the land-owner families to receive compensation from the mining company, and he'd been happy to receive some of the proceeds. Just before he went off on his violent spree, Ona had received US$700 from his Uncle Matthew Kove. Apparently, Ona felt the sum was way too low for him. Kove was shortly thereafter kidnapped and he was later declared dead. As the *Australian Weekend Review* reported on 29 May 1989, Kove's demise is "accounted as one of the reasons for Mr Ona's refusal to give himself up (*to the authorities, SL*)."

Ona is another subject that could be discussed in near endless detail. What's indisputable though, is that his death made him disappear off the political scene.

Clearly, things on Bougainville have moved on.

Using the web to gain an edge.

It was in a German finance chat board, that Ona's death was first reported.

A famous board character, 'Nekro', who had been writing extensively about Bougainville during the previous years, was the first to put the news into print after having heard of Ona's death through local sources on Bougainville. Anyone who noticed the post early enough, had a real edge over the market. As soon as the news about Ona's death was confirmed, Bougainville Copper's share price staged a rally.

The conventional media had never exactly earned accolades during its reporting about Bougainville. The place was simply too remote and too difficult to access, for anyone to do any serious reporting on it. A lot of media reports were based on hearsay or on repeating the same old stories over and over again.

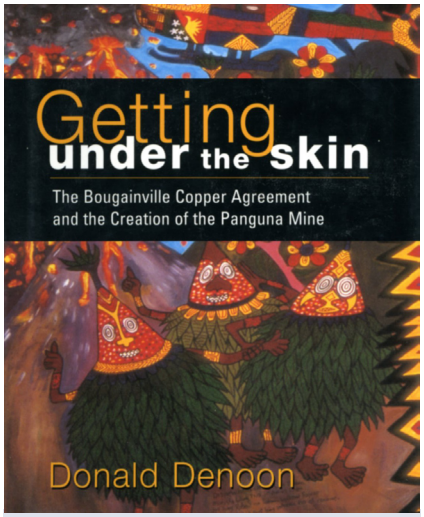
This has made Bougainville (and Bougainville Copper) a classic case, of where grassroots reports published through the internet are actually well ahead of mainstream media.

Well, this is just what I aim for with this report. My old friend Nekro actually ended up providing a healthy part of the information contained in this report.

Other need-to-know stuff.

For anyone wanting to delve into the history of Bougainville in greater detail, there are a number of key documents and publications that provide a truly worthwhile read.

Chief amongst them, is the epic 400 page report on the mine's establishment, as put out by the company itself in 1973 (visit http://www.sturmpr.com/pageID_3415803.html to download the out-of-print document as a pdf file; please be aware it's a giant 192 MB file and thus might take a while to download). Organized as a series of essays, written by the relevant experts employed during the mine's early days, there is no more of an in-depth recounting of how Bougainville Copper came into life. Given that it was written 16 years before violence broke out, it is also a candid account that includes many a critical comment on the company's performance in various areas and also on the political difficulties in Papua New Guinea. It even includes a lot of the points that eventually contributed to the outbreak of the civil war; here they had already been noted and identified as potentially problematic. Check page 22 to read up on the secessionist tendencies with which even Bougainville Copper seems to have sympathized. At times, it reads as if the authors had had access to a crystal ball.



Another highly readable and worthwhile account of the crisis

A highly critical account of the crisis, came from Donald Denoon's acclaimed book "*Getting under the skin – The Bougainville Copper Agreement and the creation of the Panguna Mine.*" A leading scholar of Pacific and African history, Denoon lays a good portion of the blame on the Australian government and a flawed de-colonisation policy. As with just about every in-depth publication on Bougainville,

this book too, brings some fascinating little snippets to life. E.g., Denoon notes how the Western media gave front-page reports about protestors on Bougainville – whilst in reality, these protestors "had ... no support" even from "the people in the area subject to the mining lease."

There is actually what seems to be an overwhelming amount of evidence that Bougainville Copper became caught up in what was, first and foremost, the result of ill-fated Papua New Guinean politics.

Another case-in-point, is the often-repeated blame apportioned to Rio Tinto for the 1997 hiring of a bunch of mercenaries, who were supposed to free the mine from rebels. An excellent account of these developments is Sean Dorney's "The Sandline Affair – Politics and Mercenaries and the Bougainville crisis". Never mind that these mercenaries had actually been hired by the national government of Papua New Guinea. Who'd seriously believe, that an internationally exposed company like Rio Tinto would ever resort to such measures?

On the path to independence.

During the coming years, Bougainville is bound to fill yet a few more books. The reconciliation process that was started in August 2001 is now deemed an exemplary case for a locally-generated peace process based on "indigenous reconciliation practices, local control and ownership of the process, and the generally facilitative and non-dominating role that the international community assumed."

But as with every war, the wounds have taken years to heal and some of the reconciliation process is still going on. What's more, the issue of independence has not yet been resolved.

As part of the peace process, the national government of Papua New Guinea admitted (if only indirectly) that Bougainville's integration into the nation was deeply flawed. As a consequence, the government of Papua New Guinea decided in 2001, that Bougainville was to be given the right to hold a referendum on independence. In the meantime, it was given the status as a semi-autonomous region.

The Autonomous Government of Bougainville (ABG) was formed as an interim solution until such time that a fully independent Bougainville could come into life. The ABG is still to a certain degree dependent on the national government of Papua New Guinea. E.g., certain rights have yet to be passed over from Port Moresby to Arawa – the respective capitals of Papua New Guinea and Bougainville.

One such issue, is the 1967 Bougainville Copper Agreement (BCA) that formed the basis of the mining company's operation. The ABG needs the consensus of Port Moresby to make any amendments to this agreement. At the time, the contract was signed between the national government of Papua New Guinea and Bougainville Copper. The company received the right to mine on Bougainville, in a contract that was given an initial 42 years duration and with the company receiving an option to extend it twice for 21 years each (giving Bougainville Copper the right to mine and explore on Bougainville until 2055 - there might be provision in there to not make the years of interruption count towards the deadline).

For these matters, a solution still needs to be found. It is likely that such a solution will ultimately only be found, if at the same time Bougainville is put onto a path towards independence.

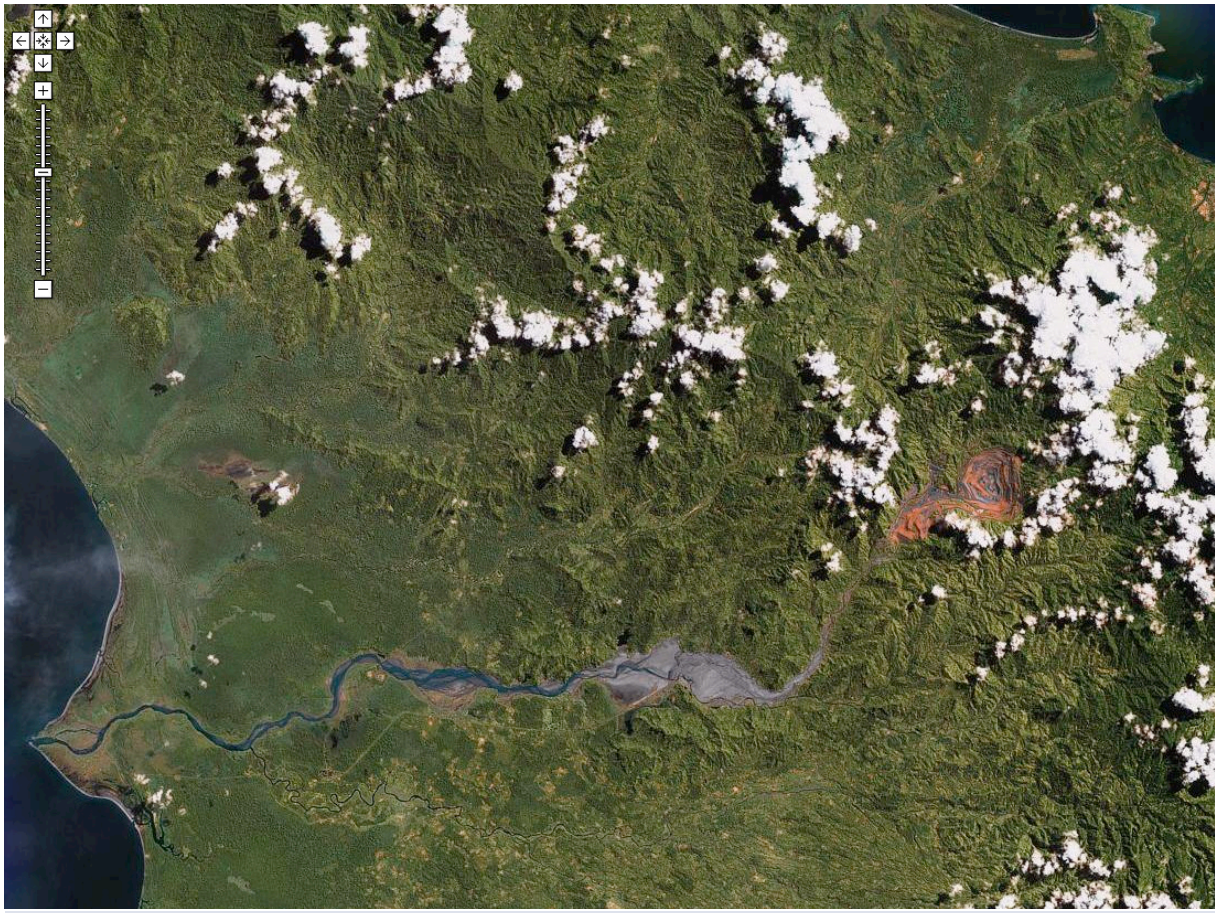
As described on page 59 of this report, without a proper financial foundation, it is unlikely that the island will be released into independence. At last count, well over 95% of Bougainville's national budget (probably closer to 98%) came from foreign aid.

Its clearly visible that a return to some sort of mining on Bougainville will, once again, be a prerequisite for a young nation's independence.

This time, however, the auspices bode much better for Bougainville's people.

Will the people of Bougainville finally be able to reap the wealth of their island?

II. Mining in the 21st century: The economic exploitation of tailings, the hunt for deposits and an ancient mining method gets an all-new lease of life.



The Panguna mine's tailings area around the Jaba river seen from a satellite (brown = mine, grey = tailings)

First things first, here is something that will most likely surprise you to read: I am not actually in favour of reopening the Panguna mine as it was. Actually, I am vehemently opposed to any suggestion of returning things to how they were.

Panguna in its old set-up, must never operate again.

Ever.

I say this, both as a human being as well as a shareholder with a seven-digit number of shares under my control.

Surprised?

There is more.

I am also far from taking a stance for denying or even just defending Rio Tinto's past pollution of the island.

It'd be way too simplistic to say that mining by its very nature is a dirty business and that leaving behind a devastated area is just the way it goes when wresting resources from Mother Earth. Try and tell that to the

Bougainvillean mother who can't feed her children because the local river was poisoned and the jungle animals have vanished (possibly even with the jungle itself).

Rio Tinto created a right old mess on the island, one that to this day is leaking toxins into the environment. The millions of tons of processed mud washed from the Panguna mine into the Jaba river contain plenty of chemicals that cause anything from fish dying to humans getting cancer. And this stuff just sits there. As a matter of fact, if things are left as they are, the leaking will continue.

It might continue for hundreds if not even 1,000 years; if scientific studies about this kind of environmental legacies are to be believed. Even if some studies might be pushing it because of a political slant, the simple fact is that toxic pollution of this scale only appeared during the 20th century. It's been around for too short a time, for anyone to know for sure how it's all going to play out in the long run. Besides, whether it's a 1,000 years or a 100 years, for the people alive today this does not make much of a difference at all.

Except for those who have no conscience at all, people realize that there is no way forward without acknowledging that in the past, some aspects of Bougainville's development as a mining destination went horribly wrong.

Also, one would have to be heartless to be in favour of exploiting a people whose culture had only just been touched by the concept of modern-day property rights at the time when the mining company arrived on their island in the 1960s. Despite the best efforts of Rio Tinto's legal predecessor, Conzinc Riotinto of Australia (CRA), most people on Bougainville had no idea what they were in for when they signed away their land.

Clearly, there is a degree to which the company needs to be held responsible for what it did on Bougainville.

Surprisingly, all these problems can nowadays be taken care of in such a way, that all parties stand to gain.

Why conventional ways of problem solving won't work on Bougainville

Previous attempts to settle the score in a 'make them pay' kind of way, did not succeed. Lawsuits claiming US$14bn in compensation were launched against Rio Tinto and Bougainville Copper, but none of them prevailed.

Try taking on a mammoth with spears and arrows, and you discover what it must feel like to be battling a US$100bn industry giant over compensation payments. Plus, there is a legitimate case for saying, that back then, it was a different world and that Rio Tinto acted according to the rules of the time. This too, is a hard point to argue with. There is plenty of evidence that as dirty a business as the Panguna mine was, it was actually much less so than other comparable mining operations of the time.

Taking the case to a US court probably only benefits the lawyers

Lots of ink was spent on investigating who was to blame. Endless discussions have taken place arguing about the details of what exactly has happened, and those lawsuits that were eventually launched against Bougainville Copper's parent company, ended up being dragged all the way to California. All of this certainly was a necessary process to work through the conflicts of the past.

However, life on Bougainville has now had 10 years to return to some kind of normality. After such a long time, it's becoming ever more visible that there is a fine line between making a justified effort to account for the past, and doing too little in terms of carrying out actions with a view to building a future.

Luckily, the court case has not been going anywhere - and it's unlikely to get anywhere. I say luckily, because this opens up the path for an actual solution of the problems. Spending another 10 years on yet more lawsuits, would line the pockets of a few happy lawyers, but it wouldn't do away with the toxic dumps. Nor would it feed the new generation of Bougainvilleans now growing up on the island.

Even if the judge decided that Rio Tinto had to pay compensation to the island, it could well turn out a pyrrhic victory. This would be the definitive end to Rio Tinto ever doing anything on Bougainville, and as you will see later in this report, it's the company's know-how in certain new technological areas that is needed to find a real solution to Bougainville's environmental problems (not to speak of the island's economic problems, which are actually tightly intertwined with the environmental issues). Any money paid as compensation would be likely to disappear within the island's under-developed government. The political triumph of a few would then turn out to be the economic loss of almost all.

The only thing capable of cleaning up the past mess and creating a prosperous future on Bougainville, is to look at a range of entirely novel ways of handling the situation. These consist of measures that you can be sure wouldn't come from a lawyer. The kind of people really needed on Bougainville today, are nard-nosed engineering experts.

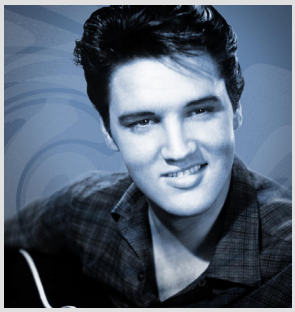
I believe that what you are going to read on the following pages has not yet been written down in such detail by anyone else. The recent reporting in the press continued to focus on what I personally deem to be hopelessly outdated points of view – basically, judging the Bougainville situation using the kind of information that dates from the 1980s or 1990s.

Just in case you hadn't noticed yet... It's now the year 2007 (with 2008 being just around the corner), and the world has changed.

A relic in need of some modern-day expertise

Stand still, and you'll quickly fall behind. The world moves on with every single day. Those not keeping up the pace, are quickly left to eat dust.

Bougainville Copper is a case that stretches out over almost four decades, and even the most recent stretch of the mine being dormant amounts to some 18 years. Such a long period is actually difficult to grasp. How much do you remember of the stuff you did 18 years ago?



1967

1989

2007

The world has moved on considerably since the opening (and closure) of Bougainville Copper's mine

Sometimes, it's helpful to take a step back and take account of just how much the world moves on in 5, 10 or 20 years. That's especially the case with Bougainville. As I have shown you in the quick historical overview in chapter I, it's a company that to this day is affected by events that took place as long ago as 40 years. We are talking extremely long time-frames.

To put it all into perspective, go back to the year 1989. It was the year the Berlin Wall came down, the oil tanker Exxon Valdez ran aground and caused the biggest ever oil spill in Alaska, and gay sex was made legal for the first time in parts of Australia since settlers had set foot onto the continent.

What a different world it was.

It was also the year that Intel released the 486DX processor. I'd guess that my mobile phone has more computing power and memory than the most expensive PC of the time. American drivers had to pay 97 cents for a gallon of gas, which compares to more than $3 today. The Game Boy was a bestselling item and the first-ever global positioning satellites were launched into space (though not that many people would have actually known what global positioning systems were).

Now go back to the 1967. The pocket calculator was invented. Elvis Presley was one of the world's most popular musicians. Polaroid cameras got people excited as the latest must-have gadget.

How the world has moved on.

These two years weren't chosen randomly. 1967 was the year that Bougainville Copper was established. And 1989 was the year that it was closed down due to civil violence.

Is there anyone who doubts that since these two dates, the goalposts have shifted somewhat? You bet they have shifted. Yet, when discussing the very subject of Bougainville Copper, all too often it's forgotten that the world has simply moved on and nowadays looks entirely different to how it looked at the time when the mine was shut down.

Panguna is still treated as if shovelling copper from the ground can only be done the same way that it was done back in the 1970s and 1980s. Yet, just as we don't use mules to carry copper ore up a steep mining trail anymore, mining technology has moved on to the same degree during this time. As a matter of fact, the technology available to the mining industry has changed massively during this time.

Changes generate opportunity, and the changing circumstances of Bougainville are where, today, an extraordinary opportunity can be found.

The brave new world of "no harm mining"

Bougainville Copper sits on a mountain of wealth – quite literally!

Actually, it's not just one mountain. Besides its mining rights for the 1,000 meter high mountain where the Panguna mine is located, it also holds the exploration rights for every single other promising mining location on Bougainville. The company's mining leases cover the so-called areas 1, B9, B6, B8, B7, B2, B10 and B3 and the leases for prospecting cover the so-called areas marked as 1, 2, 3, 4, 5, 6, 7A and 7B. You get a more vivid idea of how the mining rights are spread out by looking at the map on the following page. Also, I'll come back to the issue of these leases in more detail later.

There is a quite a number of potential exploration sites on Bougainville.

At the moment, all this wealth is inaccessible, because there is no large-scale mining happening on Bougainville. The metal reserves are dead capital sitting in the ground, with no one getting any benefit from them.

The locals fear that any return to mining will also be a return to dumping mine tailings into the pristine countryside that they have been living off for generations. Land ownership is of crucial importance in these cultures, which is why it is actually the family mothers that are the owners and traditional safe keepers of land. The islanders also fear a return to the times when the biggest part of the mining proceeds were sent over to the far-away Papua New Guinea national government in Port Moresby, an institution that ethnically, the Bougainvilleans feel absolutely no connection to. Lastly, they fear a return to pumping toxins into the river and having their river system choked by millions of tons of debris.

Luckily enough, technology has already solved all of these problems.

Meet Dr. Robin Batterham, an Australian scientist who for 6 years was the official 'science, energy and innovation advisor' to the government of Australia.

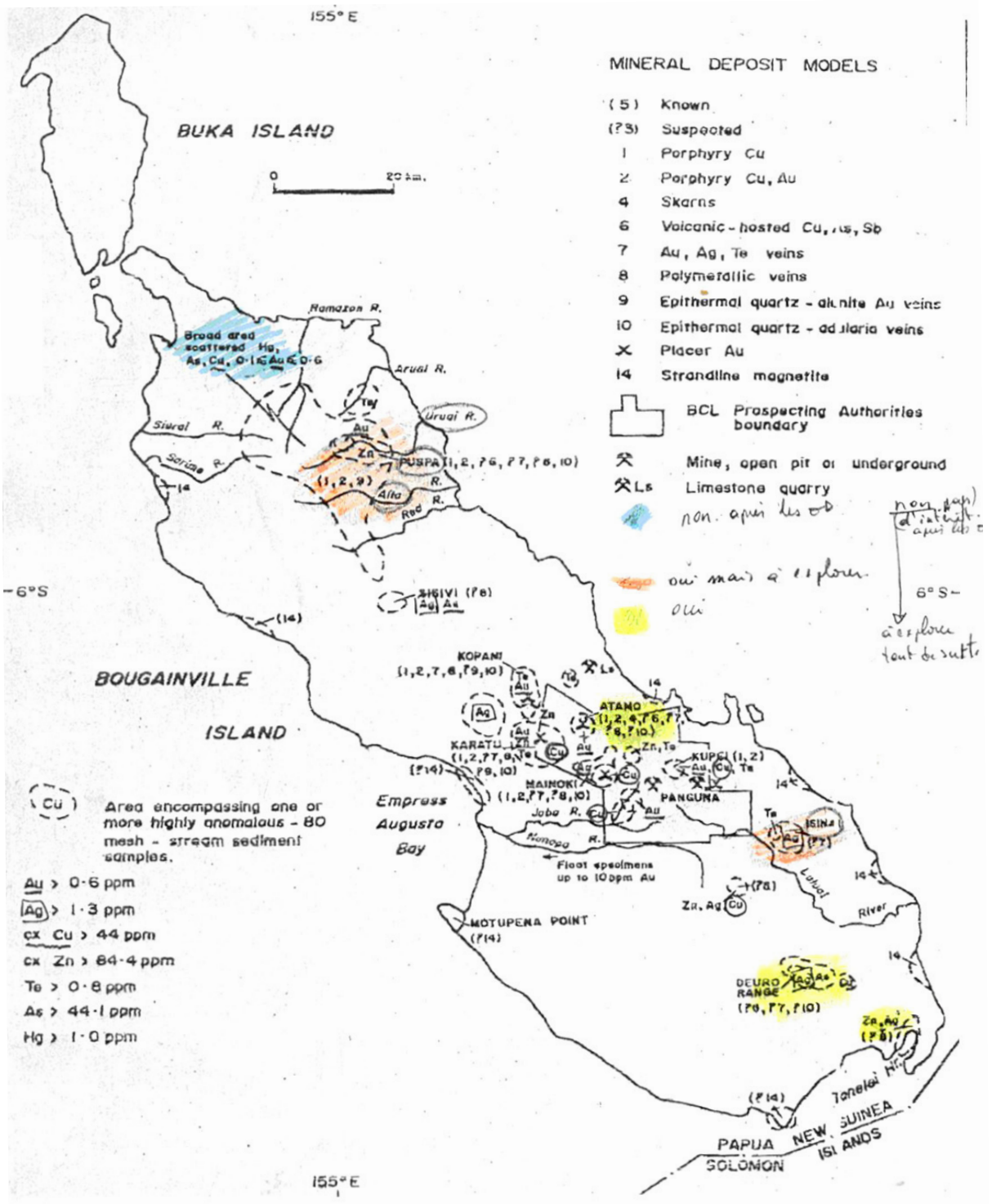


Figure 5.2 Location of (known) mineralisation and distribution of geochemically anomalous stream sediment samples. Known mineral deposit models are assigned, and those suspected on the basis of stream sediment geochemical results/geological considerations, are queried..

Map of mining sites on Bougainville island

If there is one ambitious, almost incredible claim that I'd like this report to be remembered for, then it's one that Batterham actually deserves the credit for.

"The future of mining lies in extracting minerals from areas of outstanding natural beauty", or in other words from some of the world's most environmentally sensitive areas.

Sounds incredible?

The statement makes more sense once you know, that this won't be mining as we know it.

There couldn't be clearer proof that something along this line is in the making, than the rapidly rising share price, as well as the 20-year chart formation that Bougainville is currently undergoing. The stock market tends to be 6 to 12 months ahead of the time. It's an anticipation machine. What ever happens within the next year or so, is usually already appearing in today's share price.

Not at any time since 1989 has the share price indicated so clearly that changes are afoot

With the stock market reflecting in advance what's going to happen within the coming 6 to 12 months, there is ample reason to believe that what I am suggesting on the following pages (or something of a very similar nature), is already in the making in one way or another. That's besides all the other pieces of evidence pointing in this direction.

All of this is actually clearly visible to anyone who has done their homework.

A peek into the future of the copper mining industry

It's not too difficult to research that pretty soon, large-scale open-pit mines are most likely going to be a thing of the past.

If you don't like the idea of sifting through Google to research a subject, you can simply spend $1,100 on the research report '*Analyzing the Major Copper Mines Worldwide*', which Aruvian research put out in August 2007 (available on http://www.marketresearch.com).

This nicely sums up what's in store for the copper industry (and other base metal producers). In case you want to read up more on the subject; the extract was taken from page 22 of the Aruvian report.

"Some mining companies have expressed fears that only limited potential remains for developing large-scale open pit mines."

Have you ever heard of Peak Oil? Chances are, that by now you have. It's the theory that the easiest-to-reach oil reserves were pumped up first, and that we are now entering an era of having to exploit the more inaccessible oil reserves. More difficult access means higher production prices. This is the key reason that believers of the Peak Oil theory are convinced that higher oil prices are here with us to stay.

During the past 2 years, Peak Oil was discussed all over the place. I actually already wrote a 152-page report on the entire subject, back in 2004. After I wrote about the topic, it took about another 12 months before the formerly arcane subject kept popping up in the media more and more often. Some of the Peak Oil theory's finer details are still being argued about. What can't be argued about, however, is that oil has since then risen from US$45/barrel to its current US$90/barrel. There have been pretty wild fluctuations in the meantime, but overall the oil price has remained right up there near its peak for several years by now.

Say good-bye to cheap commodity prices

Call it 'Peak Copper' or what ever you like. But a similar development to what is happening in the oil market, is well underway in the copper industry.

The world is simply running out of places where you can still find large mineral deposits near the surface. These 'easy' deposits were what the mining industry first exploited. Of course, the low-hanging fruit got picked first. Later on, you need some equipment to get higher up the tree (or as in the case of mining, 'lower down'). It becomes more time-consuming, more expensive, and even a bit more dangerous.

This statement is true for all base metals. However, let's stay with our most relevant example; copper.

There have been way too few new copper discoveries during the last decades. Between 1992 and 2003, 25 new copper deposits large enough to mention were discovered. That's not a huge number to begin with. Of those 25, only 2 or 3 were actually developed into a producing mine. The rest were either too small, or simply not significant enough to be given priority - or they are still in the process of being developed from exploration site to mine.

China and other emerging markets have become the driving force behind copper's surging price

This actually does make a lot of sense, once you think about the history of the mining industry. Starting as early as the late 19th century, geologists systematically scooped out the planet. First, they simply walked the field looking out for interesting formations. Later, they used technology for airborne resource searches. As one of the standard textbooks on exploration puts it: "In most countries the easily found deposits cropping out at the surface have nearly all been found." (Taken from 'Introduction to Mineral Exploration', a 481 pages, $86 standard reference book published in 2005 and on whose content quite a bit of this report is based).

What's close to the earth's surface, has not only already been discovered, but also to a considerably degree, has already been mined.

Eventually, one or the other new copper deposits of a decent size will be discovered. However, it's very unlikely that this will be close to the surface. Remember, the deeper the deposits are, the more expensive it is to get them up.

At the same time, the world's need for copper is increasing. Copper is the kind of stuff that's in extremely high demand in emerging markets. It's a so-called base metal (the two other large metals groups being ferrous metals, e.g. iron, and noble metals; like gold and silver). It literally forms the basis of much of modern-day life and it is one of the world's most useful metals. It is a very efficient conductor of electricity. It is flexible, strong and it doesn't corrode easily. It is used for heating, air conditioning, plumbing, roofing, adapters, computers, cars, mobile phones, wiring, electrical leads, transformers, motors and lighting units.

Use of copper	Percentage of total use
Building wire	16%
Plumbing & Heating	14%
Automotive	11%
Electric Utilities	9%
Air Conditioning & Commercial Refrigeration	8%
Telecommunications	7%
Factory Equipment	6%
Electronics	6%
Appliances & Extension Cords	3%
Other	20%

Source: http://www.unr.edu/sb204/geology/modern.html

So far, all predictions that materials would be found to replace copper in a great many products, have proven to be wrong. There was some replacement in plumbing, but even that has not stopped the incredible freight train of additional demand hitting the copper market.

Demand for copper is continuing to rise and a replacement is nowhere in sight. The most recent long-term forecast for Copper comes from the mining consulting company, CRU, which publishes both a yearly and a quarterly review of the copper market. Their projection is, that copper demand will more than double over the coming 25 years.

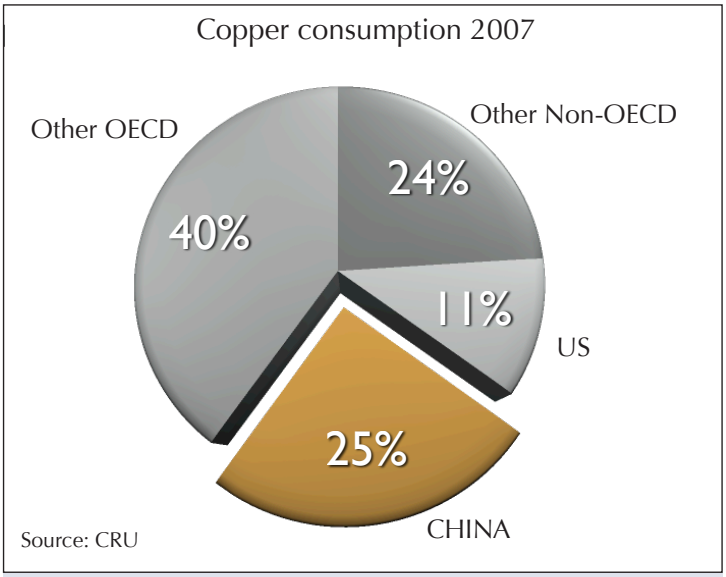
The intensive development of economies such as China and India is playing a key role in the forecast. With the other two thirds of the world's population now rapidly catching up with the industrial world, there is a wave of demand for anything ranging from electricity wires to plumbing and automobile batteries.

China is now sucking up more than 25% of the world's copper production, and rising. India is turning into a vast consumer of copper. Yet, this may just be the start. A quick comparison shows you why.

Japan consumes about 12 kg of copper per capita. North America consumes around 10 kg per capita, and Europe consumes 9 kg per capita. But the massive populations in Chile, India, Eastern Europe and South America are all still consuming less than 2 kg per capita. Despite the generally low per capita consumption

of emerging markets, the Asian region is already accounting for 50% of the world's copper consumption.

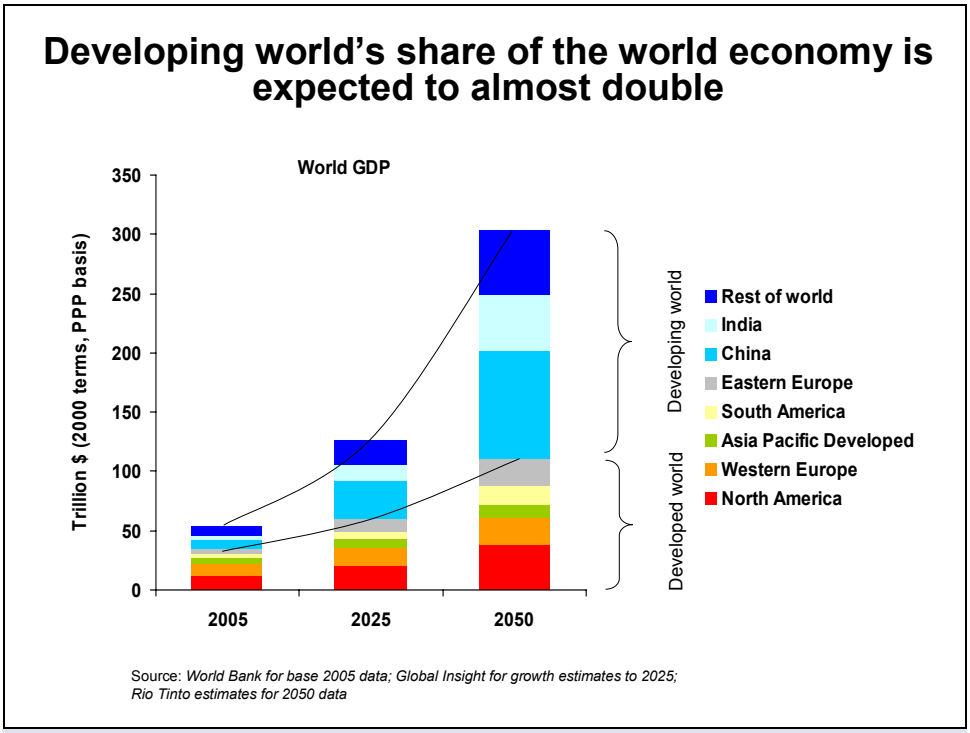
Imagine where copper consumption will head over the next 5-8 years, when the energies and aspirations of a billion and a half new workers and consumers will be unleashed into the global economy. Commodities markets will always undergo considerable short-term fluctuations, as they are doing right now due to hedgefund money being pulled out of these markets for liquidity reasons. Over the next few years however, this entire market is poised to be re-rated upwards. That's not to mention of the use of copper in green energy equipment, which is also a growing factor in this market.



One quarter of the world's copper consumption now goes to China

According to research by Metals Economics Group, "Worldwide, significant copper discoveries between 1998-2004 have fallen well short of what is needed to replace the copper produced - a total of just 39.9m tons of copper in reserves and resources has been discovered, while production totalled just about 93.6m tons - although the resources in these deposits have potential for further increases over time."

Over a six-year span, only 39.9 million tons of copper was discovered, while 93.6 million tons of copper was produced. At the current rate, the world is quite literally depleting its known copper reserves, at an astounding speed.



Over time emerging markets will only grow larger still

Just a few weeks ago, the world's largest copper producer, Codelco, said the metal's bull market would continue next year, as rising Chinese demand more than offset weak US consumption and a "double digit" surge in production cost. "Copper inventories are very small. Demand is growing fast in emerging markets; in particular in China. This process will continue in 2008", Jose Pablo Arallano, Codelco's CEO, told the *Financial Times* on October 30th.

The *FT* further reported: "Mr Arellano warned that it was difficult for the supply side to respond to the consumption increase, adding production costs had been rising at double digit rates since 2001, when the current bull market started. "Time needed to get a new mine in production is much longer than in the past", he added."

What's the world gonna do – run out of copper?

More copper will be found, but it will be found much deeper under the earth's crust and therefore it will be more expensive to mine.

Luckily, someone has already thought of the right technology to tackle the challenge of deep underground copper deposits. Amazingly, you need to get back to the 1960s to find the best-ever piece of analysis written about this solution. Coincidentally, this research report originated during the same era as the Peak Oil theory. It seems like there really isn't anything new on this planet.

Again, do expect to read much more about this in the conventional media, during the next 12-24 months. This topic is bound to cause quite a bit of media excitement quite soon.

You will now get a peek, into the future of the copper industry.

Remember where you read it first!

The future of copper lies in much deeper mines

Open pit mines for copper were the equivalent of Saudi Arabian oilfields. Very close to the surface, with just the right kind of pressure built up underground, and therefore very cheap to pump up. How easy it all was, even if at the time few people realized it (not least, the consumer, who anticipated that oil, copper and other base metals to be forever available on the cheap).

In a few decades, striking enormous wounds into the earth's crust will probably be remembered as the days when the mining industry had it all too easy. However, it will most likely also be remembered as a savage way of mining, one that by then has long been discarded in all but a few backward-ish places where people have no respect for the earth and for the people living on it.

Luckily, human ingenuity has already provided ways and means to ensure that we won't simply run out of copper. Instead, deeper-lying copper deposits will be explored. This is the new phase that the mining industry will enter during the period 2010-2020.

It'll come at a higher price, but it can be done.

Open pit mining is feasible only up to a certain depth. You can dig a hole to get to the stuff that's about 600 or 800 meters below the surface (depending on various circumstances such as the consistency of the ground and the topography of the surrounding areas). But you can't dig a hole to get to what's lower than that. Some exceptional open pit mines did reach even deeper, but they were the exception. For each such exception, there are two or three cases of mines where open pit mining couldn't be done to even half this kind of depth.

Open pit mining is a concept where physics are against you. You face issues such as the outer walls of the hole collapsing, against which there is only so much you can do. Securing the outer walls against mudslides would become more and more expensive.

That's why, once you are speaking of deposits below certain depths, you need to switch from digging a hole, to working with tunnels instead.

The point is approaching, where it will become both economically and physically impossible, to get to these

There is a definite physical limit to the depth of open pit mines

deposits by digging large holes. Copper mining is bound to move underground. The technology for this is already getting ready, and the implications for the market place and for the mining areas could not be greater.

Curiously, the organizations that should be most happy about this new trend, are not just the mines. Environmental agencies and non-governmental activist groups can claim, that they too have contributed to the mining industry moving into a new era.

Western Mining companies can't operate outside the scope of the media

One aspect that has changed tremendously since the early days of Bougainville Copper, is the influence of media, non-governmental organizations and grassroots movements.

There is no denying, that Bougainville Copper is a mining giant that was brought to its knees by a movement that started with initially just a bunch of ordinary people. Actually, it was not the only mine to which this has happened. It was probably the highest-profile such case as far as media reporting was concerned. But there is actually a considerable list of similar (and successful) mining crackdowns initiated by the little guy in the street.

You only need to travel to the other end of Papua New Guinea, to see such an example in real life. The giant Ok Tedi mine was temporarily shut down, over protests relating mostly to the environmental damage done by the mine.

Around the world, there are dozens of further examples - Ok Tedi merely sticks out because of its vast size.

Mining companies today not only face a battle for securing a decreasing number of promising mining claims. They also have to face new forms of opposition, and powerful ones for that matter. Today, for example, there are more than 50,000 international 'NGOs' (non-governmental organizations), compared to fewer than 20,000 only a decade ago.

Big business is constantly being watched. Doing nasty stuff gets you exposed, and it gets you exposed in a way that ultimately hurts your business.

In today's day and age, corporate misbehaviour barely ever stays secret for long

Much of this ultimately boils down to the power of the Internet. The new information-based economy has greatly increased transparency; it has fostered local self-help - and corporate secrecy has become virtually impossible. Do something that's against the books or against decent conduct, and chances are one of your employees will eventually put a video of it onto YouTube or Liveleak. Courtesy of search engines like Google, stuff like this will then be available on the net forever.

The spread of the Internet and other information technology has enabled millions of individuals to communicate with each other in ways that were unimaginable even a decade ago. No one can operate in secrecy anymore (that's also one of the reasons why I have been copied into the email discussions of Bougainvillean politicians for the past two years, but I save that topic for later).

Truly great companies never see change as threat, but always as an opportunity. When a sharp bend appears ahead of the vehicle, only those who didn't look a few hundred yards ahead are at risk of skidding off the street. The well-prepared elegantly steer into a new direction and accelerate as soon as they get closer to the end of the road's turn. New vistas open up to them and they meet them well prepared.

For large companies, the age of total transparency and massive interaction with the Internet's smart mobs, represents not just additional risk but also a huge opportunity. Those who are prepared, will find that the current changes of the mining industry will open up new avenues.

Why I believe Bougainville Copper is already preparing for a new era

The Internet age brings risks that can lead to a large company getting stuck in a costly and time-consuming corporate scandal. But the other side of the coin is that there are also new ways opening up for large corporations, to get ahead faster than their competitors. That is, for those companies that realize the new world we are now living in. It's an era when a company can reap incredible growth by carrying out actions that, on the surface, appear as though they are actually against the profit motive that drives public companies.

Bougainville Copper too, could be about to engage in some surprise moves. What the company's adversaries have so far tried to force upon the company, might now actually be pursued by the company on a voluntary basis; and to a better and more wide-reaching degree than anyone would have thought possible.

Bougainville Copper is already actively communicating its case through the web (taken from http://www.bougainvillecopper.com.pg)

The results could be as surprising as they could be stunning – for both the company's shareholders as well as for every other stakeholder.

Just imagine what would happen, if Bougainville Copper managed to turn its image from mining villain to model citizen of the mining industry?

This is where Robert Batterham comes into play. He used to be the chief scientist of the Australian government. His work was sought-out to advise Australian politicians on issues such as wind energy, solar energy and how to best replace rapidly depleting known mineral resources. Well, just the kind of scientific issues that affects the world today.

One of the programs he helped bring into life, was 'Minerals Down Under'. The still-running program focuses on "research that will focus on discovery (*of metal reserves, SL*) through the development of advanced exploration systems, drilling and development of future mining systems, processing technologies for resources, and development of solutions for sustainable processing."

Batterham is also the man who became famous for the controversial quote: "Future mining techniques could have virtually no environmental impact."

The visionary mining expert Dr. Robin Batterham today works for Rio Tinto

In July 2006, he told the Australian Earth Sciences Convention in Melbourne "future mines could explore deep, previously untouched mineral deposits using block caving and leaching techniques."

To which he then added that it would be possible for mines to leave "negligible surface footprint and negligible long-term surface environmental impact".

Since 2005, Batterham so happens to work fulltime for Rio Tinto. The mining giant secured the services of the scientist, so as to be able to have exclusive access to his ideas and know-how.

What's more, his work nicely ties in with ideas that the engineers and directors of Rio Tinto and Bougainville Copper are probably already working on. They are probably doing so quietly, for anything involving Bougainville Copper is a

sensitive issue. Actually, they'd indeed be very ill advised to present anything but an extremely thought-out plan. Bougainville Copper is too sensitive a project, to risk anything by doing things in a piecemeal fashion.

Why I suspect that something is being worked on? All you need to find one initial clue, is to go back to the most recent Chairman's statement dating May 2007. It stated: "The Board has adopted a comprehensive plan to cover the coming 3 years." On page 88 of this report you can read the entire statement.

Just what these plans are about, is currently only known by company insiders. Nonetheless, by doing some diligent research it's possible to make an informed guess.

Granted, anything involving this topic currently still lies in the realms of speculation. However, take a closer look at what's happening in other areas of the mining industry in general as well as in other departments of Rio Tinto specifically. You'll then quickly catch on to some rather exciting new possibilities, that previous generations simply did not have available to them.

With that in mind, I am convinced that my following shot at predicting the future of Bougainville Copper will strike not too far from the bullseye.

Making a mint out of mine tailings

A crucial hint for predicting what is going to happen on Bougainville, came not from Papua New Guinea or Australia, but from Canada.

Once more it turns out that watching the share price of a company from one end of the world going through the roof - ultimately has some ramifications on a company at the other end of the world (where the share price has not yet made such a strong move). It's all about finding the connection between seemingly unconnected dots, and to do so before the actual connection becomes apparent to the masses of investors around the globe.

The company is question is a Canadian firm, Bioteq.

Even just a cursory glance reveals, that its shareholders have reason to be cheerful. Three years ago, the company was pretty much unknown. Well, it probably is still pretty much unknown even now. Only, at least by now, some people will have realized that there is something going on. After all, the share price (Toronto: 'BQE') has risen from CAN$0.75 to its most recent CAN$3.85. That's 413% in 36 months. It had even reached a record of CAN$4.75 a few weeks ago.

Right now, Bioteq commands a market cap of CAN$245m. It's not yet a giant. However, if size is the only factor, it's now grown to a size that makes it a credible company. Other factors, such as the background of its executive management and of its board members, only go to confirm this. The fact that the Geneva private bank, Pictet, has taken a 9% stake in it also confirms that this is a credible venture rather than a temporary hype.

And that's not to speak of Bioteq's list of customers:

- Freeport-McMoRan Copper & Gold, the world's largest publicly traded copper company.
- Xstrata, a global diversified mining company; active in 18 countries around the world.
- CVRD, the world's largest iron ore producer which also has assets in copper, nickel, potash, and aluminium.
- Jiangxi Copper, China's largest copper producer.

These multinational corporations have all been using Bioteq's services and know-how. In other words, the high and mighty of the mining industry have become customers of Bioteq.

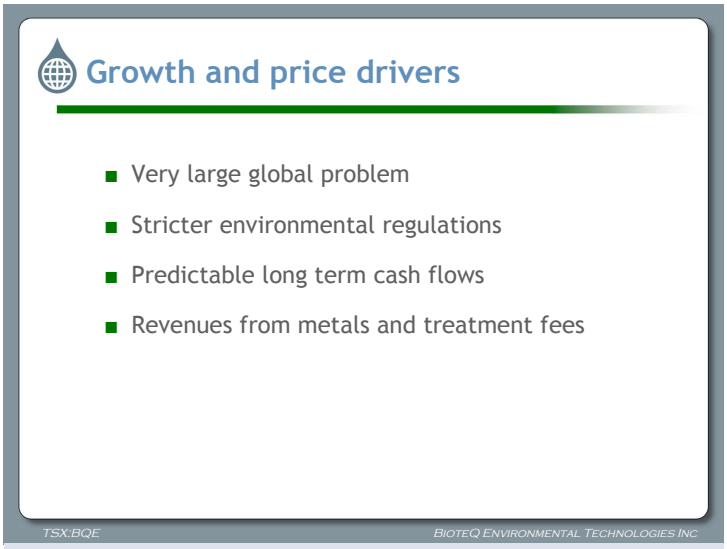
That's besides the US environmental agency, EPA, a government department with a yearly budget of US$7.2bn.

Bioteq's share price has risen 413% in three years

Bioteq is working in an area that is rapidly gaining both attention and stature. The company is developing and applying new methods for dealing with – put simply – the mess left behind by old-style mining operations. This includes treating water, sludge and tailings.

The aim: not just to clean up the mess, but to filter out any remaining minerals that still sit in the toxic waste left behind by the mine. It's a bit like a combined clean-up and recycling operation.

Few people outside the mining industry have ever actually looked into how mining works, technically. Digging holes and tunnels is what people usually associate with mining. But that's just the initial step. Copper, iron and other metals don't generally appear in the shape of ready-to-use chunks. Instead, it's contained in rock in what generally is best called trace amounts. Separating these metal traces from rocks is a big part of any mining operation.

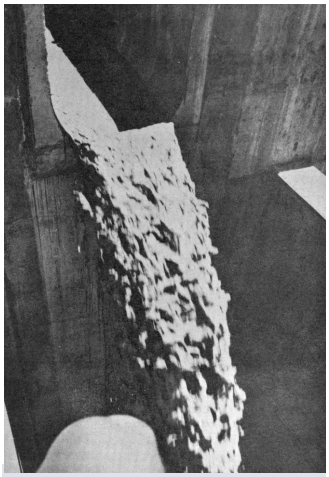


Bioteq summing up the situation of its industry
(the entire presentation is available on
http://www.bioteq.ca/presentations_investors.html)

The way that this is done is by 'washing' it out from the rock. Needless to say, pouring a bit of water onto the metal-bearing rock ain't gonna get you very far. What is required to get the task done are complex mechanical and chemical processes.

These processes have evolved over time. Without wanting to venture too far into the technical details of such an operation, one thing is clear. During the second half of the 20th centuries, these processes were by far not developed enough. For one thing, even the best mining operations only managed to get a certain percentage of the metals out from the rock. Also, these operations left behind a lot of the chemicals used during the process.

The rock and mud containing leftover amounts of metal as well as the chemicals, were simply dumped into the field. These are the infamous tailings, such as the ones that were dumped into the Jaba river on Bougainville.



The Panguna mine pumped hundreds of millions of tons of tailings into the Jaba river. Photo of actual tailings on Bougainville

From Bioteq's perspective, one man's mess is another man's fortune. The Canadian company has actually found ways to reprocess such tailings. The result is, that a good part of the toxins are removed from the area. As a by-product, an equally good part of the remaining minerals are recovered, too.

Throw in rapidly rising world market prices for minerals of all sorts. That's why all of a sudden, cleaning up mine tailings can actually be done in such a way, that it earns money.

Leftover minerals are increasingly becoming a viable business.

Among Bioteq's past projects was the cleaning up of the tailings of the Caribou mine in Canada.

Here is a really stunning piece of information. The recovery of minerals from the tailings and waste water of the Caribou mine earned the mine owner a profit.

Bioteq started to earn a profit recently, for the first time in its corporate history. With the share having risen 5fold during the past 3 years, it's time again to ask if Mr Market is trying to tell us something about the future of the mining industry?

Another real life project (and one on a bigger scale), is the recent clean up of the tailings left behind by the Hellyer mine in North West Tasmania in Australia. Operated by Intec, the mine was eventually depleted and it shut down in 2000. Left behind were the tailings. These had been as professionally stored as seemed possible and sensible at the time. But they were still an environmental risk, and they contained plenty of remaining minerals.

Intec then signed an agreement with Polymetals Mining Services to recover zinc, lead and silver whilst at the same time rendering the site harmless to the environment. The project not only created significant employment in the area, but also went to show that there has been a lot of technological process. Put simply, what used to be an unsolvable environmental hazard can now be rendered harmless and possibly even bring in some extra cash.

The method used for the Hellyer project had originally been invented for use in the copper industry. Its use was then extended for all base metals and gold - and even for eliminating some specific environmentally damaging residues. Quite tellingly, a newspaper on the project mentioned "the re-treatment proposal considered in 1999 did not eventuate because of low metal prices at that time. … Intec estimates the project will generate a pre-tax profit of about $19m a year, split equally between the joint venture partners."

Clearly, there is money to be made from a mine's past mess now that minerals prices are much higher and technology has evolved much further.

It kind of reminds me of the scrap metal collector who lived in the neighbouring village from where I grew up in the area South of Frankfurt, Germany. The term 'scrap metal' sounded to me like backyard and poverty all wrapped into one. Well, this guy actually owned a Porsche. Making a living off other peoples' leftovers was a lucrative business at the time. It didn't last too much longer after that, because metal prices were at record lows.

We are now back to a price level where it's even feasible to take the scrap metal from derelict East German buildings in Berlin, ship them down the Elbe river to the North Sea, and load them onto a container ship bound for China. This is what happened to the iron salvaged from the infamous Palast der Republik building in East Berlin, the former parliamentary building of the German Democratic Republic.

At the end of the day, all this has become feasible only because of technology having moved on considerably. That's why Bioteq is now worth CAN$245m (of which its management owns a cool 14%, having made them millionaires).

And it now seems all but a matter of time, before the sea-change in mining technology will be washed ashore the sandy beaches of that far-away island, Bougainville.

For if there is money to be made somewhere, it's usually only a matter of time before someone gets onto the case of exploiting the opportunity. That's especially true, when you have the right kind of people breathing down your neck.

Rio Tinto has embraced the much-changed situation.

Think of them what you will, but there has been a lot of good coming out from the actions of non-governmental pressure groups. Even Rio Tinto, for a long time considered to be a particularly insensitive and nasty player in the big bad world of mining, has already admitted its past – if only indirectly.

Filtering gold out of sewage.

The technology available to economically filter mineral resources from waste materials, has vastly improved over the past couple of years. Combined with considerably higher prices for natural resources, this has led to some odd occurrences.

This is what the *Daily Telegraph* reported on 17 November 2007:

"In one of the most extreme signs of China's modern grip of entrepreneurial possibilities, gold panners are striking deals with jewellery factories to buy the contents of their septic tanks. … A reporter …. told him that small processing factories had discovered gold and silver filings in the septic tanks that had either washed off workers' hands and faces or been ingested accidentally. … Workers believe the gold and silver powder that gets stuck to hair, skin and even in their stomach eventually settles in the septic tank."

According to the report, one building sold the rights to its sewage for 140,000 yuan a year (about GBP9,000 / € 15,000).

The brave new world of reprocessing waste to recover valuable resources…

Take a few minutes to visit the website of Rio Tinto, http://www.riotinto.com. You'll be amazed at how much space and attention is dedicated to what one could best call 'sustainable development' or 'sustainable mining'.

You can call them tree-huggers and you might dislike their fuzzy beards. However, discarding concepts that ask for a sensible exploitation of the world's resources, nowadays is akin to making a really bad business decision. We are now living in a world where paying attention to the effects that your business has on the environment, directly feeds down to the bottom line. Potentially, it even decides on the very existence of your business.

Case in point: Ok Tedi. The afore-mentioned copper mine in Eastern Papua New Guinea was shut down due to media pressure and citizen action.

- Bad behaviour – your mine gets shut down by politicians who are under pressure from the public.
- Good behaviour – you are more likely to be treated favourably when politicians are handing out additional mining licenses.

Such is the new reality that companies such as Rio Tinto are exposed to on a daily basis. It's actually dead simple. And it's a trend that won't go away. This is one of the reasons why companies like Phelps Dodge and Falconbridge are paying Bioteq money so as to have their past misdeeds cleaned up. Of course, the fact that this is now earning them money is just as important.

These new circumstances really are quite amazing. There is no discussion any longer about how to get the higher moral ground united with the desire to make money. Both now go hand in hand. There simply isn't a reason to argue anymore. Higher metal prices are a good part of the reason that fuzzy-bearded environmentalists are now on the same page as tie-wearing mining directors.

You can even turn the entire case around, and argue that just as much as mines now depend on the environmentalists' good-will, so do the environmentalists depend on the mining companies. That's surprising yet again. But once you think about it in some detail, it all makes sense.

So far, taking care of the environment and protecting people from the (supposed) ills of the market place, was largely a matter for the government to take care of. If you were a pressure group or non-governmental organization, for the most part the government was your relevant partner. If you wanted to get something fixed, you made sure that you had access to the right politicians or to the executive arms of the government.

Ok Tedi's infamous tailings pollution of the Fly River

However, to an increasing degree, government is failing to keep up with the task. On the most basic of levels, slow-moving bureaucracies simply can't keep up with the fast-changing pace of the market place and the equally fast-changing pace of environmental challenges.

Besides the slow pace at which government bureaucracies move, multinational corporations, by virtue of their economic success, have simply outgrown all but a few of the world's nation states. With the exception of a handful of very wealthy countries, corporations are today the world's only entities with the technology, resources, capacity and global reach required to truly make a difference.

Resources, ranging from the grey cells of smart people, to money - are what are needed to change the direction things are going and to get things to move forward. Nowhere else are you going to find a higher concentration of resources, than in the corporate sector.

Business, more than either government or civil society, is uniquely equipped at this point in history to lead us toward a sustainable world in the years ahead. Properly focussed, companies can remove the "stain of progress" that was such a big theme during the 20th century. The truly successful corporations of the 21st century will focus on products and services that help improve the health and safety of people around the world – or, of which the production of, doesn't cause too many negative effects.

By means of the market place demanding such solutions, the corporate sector is gradually being turned into a catalyst for building a truly sustainable force of global development. As much as some captains of industry might be holding on to the old way of doing things, the demands of the market have already changed. Those who have started to adapt to it are building up potential for expansion, that their slower-to-adapt competitors are foregoing.

As I said – good behaviour equals additional mining rights. Bad behaviour gets you expelled and hurts your bottom line. Ok Tedi cost BHP Biliton not just millions in compensation, it even cost the company the entire operation as it eventually gave up Ok Tedi. Just ask any BHP Biliton executive whether in retrospect, he would have preferred to invest some more into the environmental aspects of Ok Tedi (had the technology been available at the time) so as to have the double benefit of not having to pay multi-million compensations and continuing to earn yearly revenue from the mine.

Under these new circumstances, being on good terms with the public is to remove constraints to growth.

Businesses are now being built and grown on the back of harbouring the effects that the public's goodwill can have on their balance sheet. Just ask BHP Biliton whether, after their Ok Tedi disaster, they expect to get much more business in Papua New Guinea. Tellingly, the 2007 annual report of BHP Biliton does not mention a single project being carried out in Papua New Guinea. The company is foregoing a mineral-rich country that nowadays is so full of opportunities for mining operators.

Business driving sustainability, is one of the key trends for the next decade. These changes are gradually taking hold everywhere. And guess what? Firms are recognizing that by addressing these issues, they not only deal with the immediate issue of tackling the social and environmental concerns brought up in the press, on the Internet and in political organizations, but they also build the foundation for innovation and growth in the coming decades.

Those companies that play to the new rules, are rewarded by the market place. They are increasing their profit potential, which is what ultimately counts.

Those who don't, sooner or later (but to an increasing degree, sooner!) get punished by consumers, by politicians - and in the end, also by their shareholders.

Recognizing global sustainability as a catalyst for new business development will prove increasingly important for corporate survival in the 21st century.

Under these new circumstances, the profit motive is accelerating rather than inhibiting the transformation toward global sustainability, with non-profit organizations, governments, and multilateral agencies all playing crucial roles as collaborators of innovative corporations.

The good news coming from all this is that large mining companies will soon be able to make a profit from running morally impeccable operations. That's where Bougainville Copper has an opportunity larger than probably any other opportunity held by any other publicly listed mining firm in the world.

After all, the deeper you are in a mess, the more remarkable and visible your success is, if you manage to pull yourself out of it.

The basis for an extraordinary turnaround

Compared to this new world, Bougainville Copper truly stands out as a relic of the past.

I am sure that back then, the people setting up and running Bougainville Copper had the best of intentions. They adhered to the technological, legal and ethical standards of the time. They even tried to push these standards further. There is a credible case that the company in many regards did much better than some of its contemporaries and thereby actually lifted the industry standards, however dire they may have been from our perspective.

But still, pumping millions of tons of toxic slush into the river is akin to medieval methods of trying to cure the patient by sawing open his skull. The 14th century medical practioner surely had the very best intentions too. But – ouch – did that saw hurt the patient! The world has learned better in the meantime.

It's always easy for us to look back and judge. However, had you been in the shoes of a quack some 600 years ago, you might have grabbed that saw too. These situations always need to be judged on the basis of the possibilities and limitations of the time.

Currently Bougainville Copper is mostly associated with a dark past. What remains at Bougainville is a name that for many invokes disgust; a history that one could spend decades more arguing about, and a tailings area that without doubt is one hell of an environmental time-bomb.

From a conventional point of view, these are all huge liabilities. Never mind the huge amount of cash still harboured by the company (more on this in the chapter about how to value Bougainville Copper shares). Overall, Bougainville Copper is one huge problem of a company. As Rio Tinto has learnt, even leaving it dormant doesn't make the problems go away. The toxins continue to leach, the pressure groups never stop mentioning Bougainville in the same breath as they mention Rio Tinto in, and the lack of mining on Bougainville is closely associated with the continued economic crisis of the island.

Now imagine, if all these negative factors were harboured to create something truly outstanding; if liabilities were turned into earning assets, and if factors that had so far held the company back were suddenly used as tools that could reap growth and profits to a larger degree than anyone would have ever expected possible.

That's just what Bougainville Copper needs to achieve. Nothing less needs to be the target. The plans for Bougainville Copper need to be among the most ambitious ever set out – to make the result stunning not just by itself, but also in the context of where the company came from.

As I said, the chart pattern that has formed in Bougainville Copper's share price over the past 3 years is already signalling that some major changes are well afoot.

It'd take a crystal ball to spell out every single detail of what is going to happen in Bougainville during the coming months. However, at least some of the indications and trends are pretty clear. After all, it's entirely possible to research the overall trend of the relevant industries. What's more, the company has given enough hints. There are yet more hints from its major shareholder, Rio Tinto. That's why making a call on Bougainville Copper, is not as speculative as it might seem at first.

Here is how the show is likely to unfold – on the back of the company's smart and experienced engineers - driven by market forces, and probably even by popular demand of both its shareholders and stakeholders.

A new era for mining copper underground

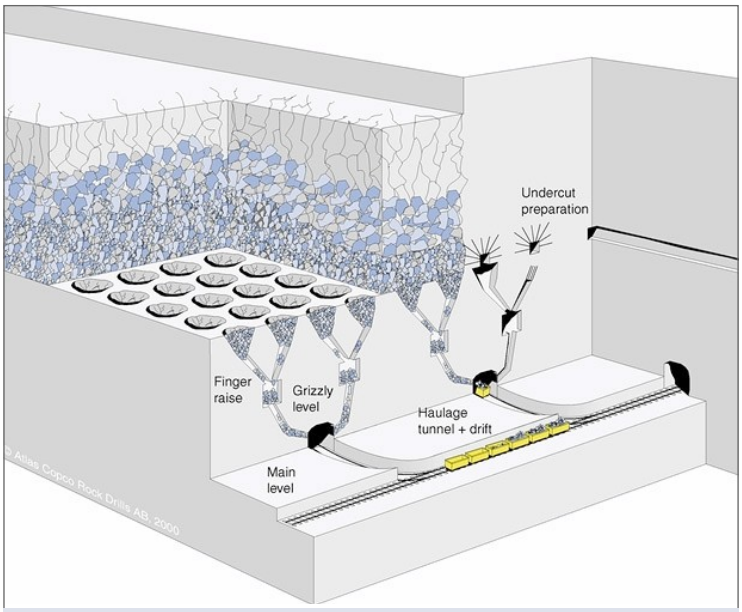
Batterham hadn't lost his marbles when predicting (no, demanding!) that large-scale mining operations should be placed in some of Australia's ecologically most sensitive areas. The man simply caught onto the fact that there are better ways of producing copper, than by digging vast holes in the ground and washing endless amounts of toxic mud down pristine jungle river systems.

One of the keys lies in a mining method that sounds almost too simple to be considered anything special. Block caving is a method where copper (and other minerals) are extracted underground, using the rock's gravity. The entire process is probably best explained by way of a few illustrations. To the right, you can see how the future of copper mining looks.

Block cave mining in its simplest form operates in the same way sand falls through an hourglass.

This involves a three-phase process of blasting and tunnelling, to form the shape of an hourglass out of the rock.

- Phase A involves blasting an upper cavern of broken rock.
- Phase B involves drilling a tunnel underneath the broken rock cavern.
- Phase C involves blasting a narrow neck (the "drawbell") that allows broken cavern rock to fall through the drawbell down into the underlying tunnel.



A picture helps understanding of the block cave mining process

As broken rock in the upper cavern falls through the neck or drawbell, the roof of the cavern gradually collapses further to create more broken rock within the cavern. This process is continued until all the rock ore is removed via the tunnel.

Loaders collect the ore and transport it to an underground crusher, and the crushed ore is conveyed through shafts, for processing.

The method has been around for ages, but it wasn't used to a large degree, as there were too many opportunities to harvest minerals from closer to the surface. Why bother? It was simply too expensive.

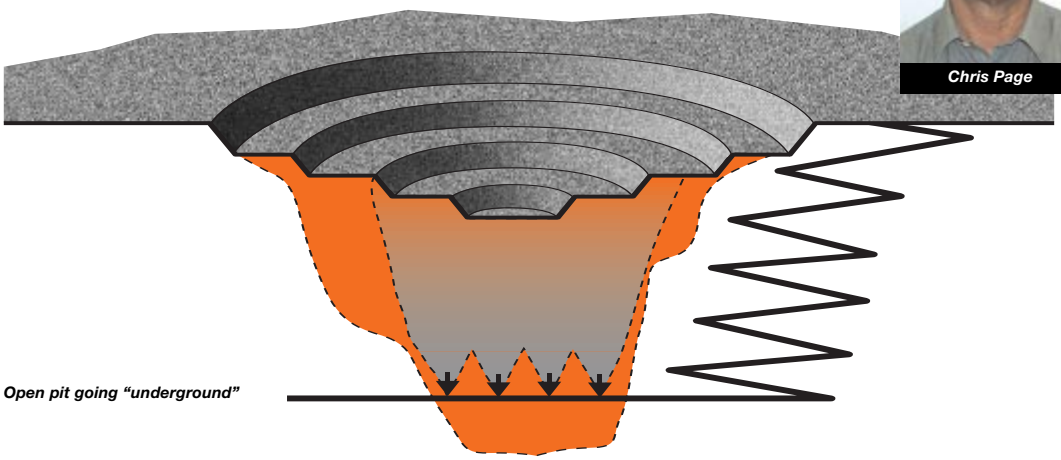
SRK News
Focus on Caving

No. 28
SRK's
International
Newsletter

Open Pits Going Underground

Some of the world's major mining companies, currently comfortably mining from large efficient open pits, are looking into the future when these pits come to an end. To maintain a competitive position on the cost curve, these organisations will have to take open pit efficiencies underground. Only caving methods can challenge open pit efficiencies.

Chris Page



Open pit going "underground"

But many of these pits are in, or will be going into, very good ground. This creates major challenges for the operators: should they opt for a pre-break, like sublevel caving, at considerable additional cost? Or go for natural caving, and fight the resultant coarse fragmentation?

The jury is still out, and probably will remain so at least until the results from the envelope-pushing Palabora caving operation are known.

"This South African mine epitomises the major challenges for caving," remarks SRK's Chris Page. "Firstly, achieving a cave and, secondly, efficiently handling the coarse fragmentation."

"The International Caving Group has considered many of the challenges and also some of the solutions. However, none of the answers are going to be easy. A whole range of issues, from pre-conditioning to cave stimulation, present some very challenging situations.

"However, the cost efficiencies achieved at Northparkes mine, and the success that recent sublevel caves have achieved in Australia do give some reason to be confident."

A critical issue, Chris points out, will be achievement of the levels of control taken for granted in an open pit. "Tele-remote technology and specialised communications systems will make this possible," he observes. "The industry is almost there. It just needs some brave souls to embrace the concepts.

"But," he cautions, "cave mining in the future is going to require a totally different way of operating, both technically and managerially, if it is to compete with open pit efficiencies."

Industry experts are already discussing the growth of block cave mining

The technology to do block-caving had not yet been developed to the point where it was possible to use it on a truly large scale.

For an in-depth account of this mining method, there is no better document than the 1965 'Block-Caving Mining Methods and Costs at the Miami mine, Miami Copper Company, Gila County, Arizona', written by W. R. Hardwick for the United States Department of the Interior. You can actually download this massive and very readable document for free, by visiting this link:

http://www.admmr.state.az.us/DigitalLibrary/USBM_IC/USBMIC8271BlockCavingMiamiMineGilaCounty.pdf

The rough concept of block caving has remained the same ever since, but the economics have changed dramatically. Block caving is in for a renaissance, simply because some of the variables have changed in favour of this method of mining.

Guess who is setting one of the key examples of how to go about it?

None other than Bougainville Copper's majority shareholder, Rio Tinto. The Australian mining giant is at the forefront of pushing the boundaries of block caving, so as to be able to use the method in a growing number of locations.

All it takes to get the gist of the story, is a look at another listed Rio Tinto subsidiary.

Rio Tinto owns a copper deposit in the Limpopo province in South Africa, in a place called Palabora. The Palabora copper mine was developed as an open pit mine, i.e. as a large hole dug into the ground. The mine started to produce in 1967, i.e. the same year that Bougainville Copper Ltd. was formed. At some point during the1990s, the copper deposits near the surface were largely depleted. In 1996, the engineers had to come up with other ways with which to exploit the remaining resources left in the mine's deeper, less accessible areas. There was still much more copper in the ground, only with conventional open pit methods it wasn't possible to get it out of there. Holes can only be dug so deep, as I have already explained above. Palabora was nearly 800 meters deep and it had simply reached the maximum feasible depth-limit of an open pit mine in this location.

Palabora became the first South African mine where block-caving was used to produce copper, and to do so underneath an existing open pit mine. Interestingly enough, the open pit mine was still being operated while preparation to switch to underground mining was concurrently going on. So there were actually two mining operations being run in the same spot; one above ground and one underground.

Full underground production was timed to coincide with the closure of the open pit mine; in 2002. In the end, some minor open pit copper production resumed for another 18 months after the underground operation commenced (showing that it's actually possible to run an open pit mine and an underground mine simultaneously). The underground mine was initially off to a slow start, with results lagging behind the targets and the mine not reaching its break-even point of 30,000 tons of ore per day. However, the engineers quickly learned from their mistakes and refined the methods with which the mine was worked. In the 3rd year of operation, the mine moved beyond its break-even point.

It doesn't take a mining expert to see that the Palabora open pit mine had reached its physical limit

Based on the most recent available figures, Palabora is now one of the largest copper mines in Africa.

In order to transform Palabora from an open pit mine to a block caving operation, the company invested $430m. The mine built up the capacity to produce 30,000 tons of ore per day after

just three years of operation. To put this into context, what is currently the largest underground metal mine, in Chile's El Teniente, is producing 100,000 tons of ore per day. However, El Teniente actually consists of five different mines and it took the Chileans 50 years to build the mine up to this level.

In other words, with relaunching Palabora as an underground mine, Rio Tinto managed to achieve an extraordinary technological feat - that up until then had been unprecedented in the global copper industry. From being a dead-beat open pit mine with virtually no reserves left in the ground, this mine rose to become one of Africa's most technologically advanced mines.

Thus, a copper deposit, that by conventional standards had been fully exploited, all of a sudden received a new lease of life. The mine's life was extended by 23 years, quite a change from the previous prospect of having to shut it down entirely.

Creamer Media's
MINING WEEKLY
ONLINE

Palabora makes the grade

By: andrew lanham
Published: 20 Aug 04 - 0:00

Taking the pioneering route is never easy.

When it made the transition from openpit to underground mine, Palabora Mining Company (PMC) in the Limpopo Province pioneered the block-caving technique in South Africa.

However, after the openpit closed and mining the block cave began in October 2002, the mine struggled to meet its production targets.

However, the tide has turned and the required production level of 30 000 t/d has been achieved more than a few times in the last three months.

Thus, it was with alacrity that Mining Weekly accepted an invitation for an update on progress at this near- legendary mine.

PMC is comprised of the mine, along with a concentrator, smelter and refinery complex.

Though its primary product is copper, it also produces a number of other minerals, such as vermiculite and magnetite.

The 807-m-deep pit with its steeply dipping sides and surface dimensions of 1 850 by 1 600 m is an impressive sight.

Cracks in the pit wall bear witness to the block-cave happening below. Though these are normal in this type of operation and are not a hazard, the mine monitors any ground movements carefully.

It is also apparent that a further 'push back' of the sides of the pit would have been uneconomic, and it was this, in 1996, that resulted in Palabora making the final decision to transform into an underground operation.

The feasibility studies showed that, with an investment of $460-million, the mine's life could be extended by a further 23 years. Within the pay-limit of the orebody, the mineable reserve is 245-million tons at a grade of 0,8% Cu.

Entire article available for free on: http://www.miningweekly.co.za/article.php?a_id=55038

Check the media for block caving, and I guarantee you that you won't come across all that much. I use one of the world's most powerful databases for press articles, and so far the number of reports about this new method are far and few between. What I can also guarantee you, is that this is about to change. The signs are there for anyone who can read and who is willing to invest a bit of time into research. In the very near future, there'll be a lot more black ink spent on reporting about this exciting new way of getting resources out of the ground.

The relevance that this little-known mining method has for Bougainville Copper, can hardly be over-emphasized. Even as far back as 2004, Rio Tinto was already stating that it "sees this (*the Palabora project, SL*) as the start of a new generation of underground mines."

The website *Mining Technology* stated that "Palabora employs one of the most complex recovery circuits installed at any copper mine", yet again a testament to Rio Tinto's willingness and capability to innovate. (source: http://www.mining-technology.com/projects/palabora/)

As *Mining Weekly* reported back then, "The importance of this to Rio Tinto is that the group has other copper operations where the openpit potential has been mined out and the only remaining option is to go underground." (source: http://www.miningweekly.co.za/article.php?a_id=55038)

No wonder then, that Rio Tinto is pressing on with pushing the block caving method further and further – and well beyond what has so far been considered the very technical limit. In a Rio Tinto publication dating June 2004, the company stated that "There is scope for innovation at every stage… Rio Tinto's engineers are working on block caving projects in several countries and a various stages of maturity."
(Source: http://www.riotinto.com/library/reviewmagazine/70/article1-6.aspx)

At the Freeport/Grasberg copper mine, where Rio Tinto is a joint-venture partner with a 33% stake, there are plans underway to go underground and develop a mine that can produce a staggering 200,000 tons of ore per day. Rio Tinto's Bingham Canyon in the US is considering going underground at the rate of 100,000 of ore tons per day.

It's not even just Rio Tinto that is looking at how to best deal with the coming end of open pit copper mining. Elsewhere, block caving is catching on too.

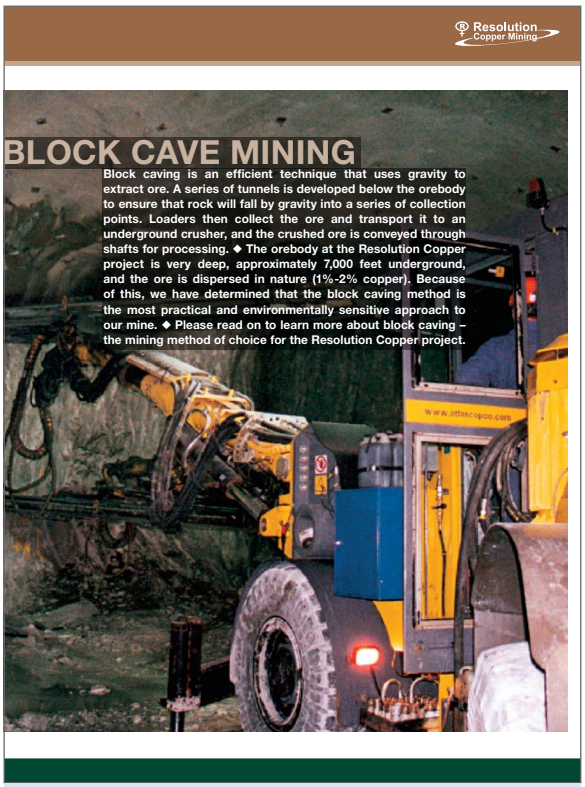
- Resolution Mining, a US company, is developing a block caving copper mine in the environmentally sensitive Apache Leap region in Arizona. The copper will be taken from 7,000 feet (2,100 meters) below ground. Just building the shafts down to the area where the copper is, will cost US$500m. Among the project's partners so happens to be both Rio Tinto as well as BHP (Rio Tinto's main competitor and – if current merger talks lead anywhere – a potential future merger partner). Interestingly, the project is about exploiting copper reserves underneath a previous mine that was eventually given up when all the copper close to the surface had already been mined. More information on the project: http://www.resolutioncopper.com/res/environment/80.html
- Codelco is the world's largest copper producer and probably also the owner of the world's largest copper reserves. *Reuters* reported in late August, that "Codelco said it is looking at new technologies, whether in.... block caving or continuous underground mining, to maintain its share of the market as the world's largest copper producer."
- The Australian gold producer Newcrest Mining is making block caving an integral part of its Cadia underground mining project – a $2bn operation that will turn Cadia into the world's second largest underground mine producing a combination of gold and copper (the same mix of metals that was mined at Bougainville Copper's Panguna mine).

The rise of block caving isn't any longer just some kind of vague prediction for the future. It has already started to happen and billions of US Dollars in investment are earmarked for it. Not only that, it's also quite simply a trend that will only ever gather force. Remember, the deposits close to the surface have already been found and exploited.

Now is the time to – quite literally – dig deeper.

The era of open put mining will be followed by an era of block cave mining.

This is going to have considerable implications not just for the copper producers, but also for the copper market. Just as the end of cheap oil is over, so is the time for cheap copper up. Needless to say, the copper market will remain cyclical and subject to wild swings. But it's now almost impossible to fathom how the copper price should ever fall back to its 1999 range of US$0.60/ton. Just as much as oil won't be going back to its 1998 price level of US$9 a barrel, so will copper most likely stay at a consistently higher level. This, in turn, gives existing proven copper reserves an entirely new edge.



Resolution Mining has decided that block cave mining is the way forward

Among the consequences resulting from a higher copper price, is that market forces could soon instigate the cleaning up of toxic legacies such as the Bougainville Copper tailings.

Bioteq – here we come!

What needs to happen next.

Speaking of technology, those toxic tailings are something that I personally feel quite strongly about.

Leaving behind a toxin-leaching heap the size of hundreds of millions of tons, simply is not right. However different the overall circumstances were back then, as long as there is a way to technically do it, I feel that Rio Tinto should first and foremost be obliged to tackle this enormous problem.

I say this as a shareholder controlling a seven digit number of shares. I also say this with a view to both what I feel is simply the right thing to do, and what I feel is in my best economic interest. Above, you've already had a chance to read a bit further, why in today's world these two factors are now actually aligned with each other, rather than being opposed to each other.

Luckily for me, it's virtually guaranteed that I won't need to do as much as exert even the slightest bit of pressure on the company's management. Never mind that any such pressure could only ever be media-driven anyway, given that Rio Tinto owns the majority of Bougainville Copper shares. In any case, it simply won't be necessary. I am dead-certain, that Rio Tinto, given its role at the forefront of responsible and technology-driven mining elsewhere on the planet, is already on the case of working on an innovative solution for Bougainville Copper.

The 1978 Annual Report of Bougainville Copper

They might not have told us about it yet, because they probably prefer presenting a well thought out master-plan instead of bits and pieces. However, the clues are all there. As a matter of fact, I have seldom been so utterly sure about one of my (seemingly) outrageous predictions coming true. That's because the company has actually already confirmed that such a ground-breaking development is not only possible – but that it's actually already been looked at.

All you need to do to find this piece of all-crucial evidence, is to pull out a copy of the 1978 annual report of Bougainville Copper.

Lucky for those, who actually own copies of these historic documents.

The solution has actually long been known.

As my 87-year old grandma says, the old stuff always comes back sooner or later. Grandma, as everyone is surely aware of, knows best. Fashion repeats itself.

Technology too, picks up some old ideas and develops them further (e.g., even the coal-to-fuel technology used by the Third Reich to stay self-sufficient as far as fuel was concerned, is now seeing a renaissance). In the world of business, old ideas are dug out again once the world has moved on in such a way, that circumstances are ideal for looking at them in a new light once more.

In a 29-year old annual report of Bougainville Copper, you'll be able to read that....

"Investigations are proceeding to determine if copper can be economically extracted from waste dumps by leaching and if additional gold can be recovered from tailings."

Rings a bell?

As a matter of fact, the report that you are now reading, is as much about researching the past as it is about looking at future trends. You actually need to combine both to get a proper understanding of the risks and of the opportunities, which lie at the heart of Bougainville Copper.

Mining is such an ancient industry (probably about as old as that particular 'oldest profession in the world'), that there is probably not much that at some point has not been thought through, dreamt about or written on by someone. The mining engineers of previous generations did of course also notice that dumping millions of tons of chemically exposed rocks into Bougainville's Jaba river, simply wasn't much of a good idea. They too, had already looked at potential ways to handle this matter in a better way.

It's a stroke of luck that besides the toxins, the tailings also contain remnants of the minerals that they were originally mined for. Bougainville Copper did have state-of-the-art mining technology available. However, the processing methods of the time simply did not manage to get all the mineral content out from the rock.

Thus, there is actually quite a bit of copper in these tailings. To be precise, copper and something else.

Namely, gold.

Lots of gold actually. Back in 1980, gold made up 46% of Bougainville Copper's revenue. This was at a time when the gold price was at US$800. As you probably know, gold underwent a 20 year slump and the price has just now risen back to US$800. Besides the company's name only containing a reference to copper, it is actually gold that could also have a powerful effect on the economics of this company. The company might even have to be renamed 'Bougainville Copper & Gold'. That is, of course, unless an entirely new name is chosen at some point in order to reflect the relaunch of the company.

However, as already discussed earlier in this report, it will take a bit more homework from the company's side (and from Rio Tinto) to unlock the door that is currently blocking Bougainville Copper from accessing these resources.

Why tailings are receiving more and more attention

When talking about Bougainville Copper, forget about mining for the moment. The mining side of the business is not actually that much of a challenge. There are loads of mineral resources on Bougainville, and Bougainville Copper is the only mining company that owns the exploration rights for all these other deposits. Block caving is something that's already well under development. As to finance, Bougainville Copper has enough assets to raise money on the stock market and its major shareholder has $18bn in equity (even more if the proposed merger with BHP goes through). Basically, that's all sorted.

However, I am dead convinced that it's not even worth talking about mining, for as long as the issue of the tailings hasn't been tackled. It wouldn't be right, either. Nor is it feasible, to get the highly controversial Bougainville mining industry back into gear, without first making a tangible, measurable and visible effort to minimize some of the past damage.

The much-higher gold price makes a restart of mining on Bougainville financially much more lucrative

Bougainville Copper should have to clean up the tailings anyway. What good fortune for the company, that it might even be able to make some money from it. Ever since the afore-mentioned 1978 annual report was published, technology for reprocessing tailings has improved. Well, you have heard about Bioteq. There are a few other companies in this area, such as First Quantum Minerals.

Listed on the Toronto Stock Exchange, First Quantum is what could probably be called a decent-sized corporation. Its market cap is CAN$5.8bn. And it counts among its projects, a tailings reclamation project in Africa. The Kolwezi project in the Democratic Republic of Congo is aimed at reprocessing tailings that still contain copper and cobalt, a left-over from a mine that started operating in the 1950s. Coincidentally, these tailings are located in the same area that Katanga Mining, the company mentioned in the foreword, is active in.

The processes used for the project, are based on the Bwana Mkubwa tailings reclamation project. This is the project that First Quantum Minerals had used to establish itself in the Congolese copperbelt in the mid-to-late 1990s. It gave First Quantum the start that is allowing it now to join the ranks of the world's well-known copper producers.

First Quantum went from less than $1 to almost $100 in 8 years

The Bwana Mkubwa tailings originally consisted of 9.6m tonnes of tailings and an operating life of about five years. The Bougainville Copper tailings amount to somewhere around 675m tons, depending in which source to believe. Either way, it's a huge deposit. Because of the comparatively short life of the Bwana Mkubwa tailings, the company quickly embarked on an exploration programme to find further sources of "feed material" for its processing plant. In 1999 it found that the tailings of a mine dating back to the 1930s, contained interesting quantities of copper. That way, First Quantum managed to turn the reprocessing of mine tailings into an ongoing business.

Just as in other areas, business is gaining experience from carrying out more and more such projects.

During the past few years, an entirely new growth industry has sprung up for this kind of problem. Reprocessing and/or simply cleaning up mine tailings has now become an industry that a whole range of private companies are catering to.

Pressure from non-governmental organizations has certainly helped with creating these industries. Mining companies had to invest into these technologies, as they were facing the wrath of politicians (who can revoke mining licenses). Additionally, metal prices soared, making it worthwhile to scrape out the remaining bits of metals from tails.

Thus, a win-win situation has arisen. All of a sudden, previous foes have become friends and business partners.

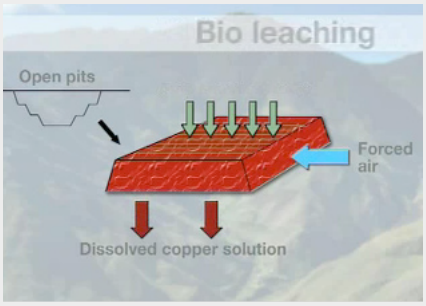
Well, as witnessed on the website of Rio Tinto: the mining giant has long started to work with, rather than against, the groups that are demanding better environmental practice when getting resources out from the ground. It started in 1999, when Rio Tinto entered a three year formal partnership with Earthwatch Institute in Australia and Europe. Later, the company entered similar partnerships with the Worldwide Fund for Nature, Fauna and Flora International, and the United Nations Environment Program.

Sustainable Mining.

Whilst produced by the company itself, the following two videos do provide some valuable insight into the new world of low impact mining.

1. Rio Tinto's efforts for sustainable mining in Peru:
   http://www.riotinto.com/ourapproach/376_video_library_6411.asp

2. Rio Tinto's work on the largest mine ever to open on Madagascar:
   http://www.riotinto.com/library/376_video_library_5150.asp



For a first-hand look (and to give your eyes a break from reading page after page), take a look at two video films that describe how Rio Tinto is nowadays approaching the task of setting up a new mining operation.

What are Bougainville's alternatives?

Delivering good news about Bougainville is a surprising message. But as far as Bougainville Copper is concerned, I am absolutely convinced that there is plenty of room for carrying just such an optimistic message.

For Rio Tinto, offering Bougainville (the island) a radically different approach by means of turning Bougainville Copper (the company) into a technologically sophisticated and environmentally responsible company, has the potential to generate a trailblazing project – one that carries implications that would resonate to all other parts of Rio Tinto's global business, including business that Rio Tinto has yet to win.

The entire era of exploitative mining ventures is simply over. Well, that's unless you are a Chinese mining conglomerate throwing your weight around in African war-zones and dictatorships.

If you want to read about the practices of some Chinese mining companies, read articles such as the following one which had appeared in *The Australian* newspaper back in February 2007. The Papua New Guinea labour secretary, David Tibu, had inspected the Ramu nickel mine.

> ***"Following a surprise visit to the site in Madang province, Mr Tibu said health and safety conditions at the project were far below international standards. Mr Tibu said workers were sometimes being paid for overtime with tins of fish rather than with money, that canteen arrangements were not fit for pigs and that toilet facilities were so inadequate and public that employees instead used nearby bushes out of embarrassment."***

(source: http://www.theaustralian.news.com.au/story/0,20867,21195800-2703,00.html)

Or simply do a Google search on China's investments in the copperbelt of Zambia in Africa. This will yield that according to some credible sources, "Zambia has …. become the prey of the rogue Chinese investors that have no regard for the welfare of those that are unfortunate enough to work for them. ….. Chinese investments such as large scale-mining and construction firms had created industrial disharmony due to poor working conditions, which did not comply with Zambia's labour laws (*not that Zambian labour laws would have been known for being overly stringent, SL*), environmental regulations and the occupational health and safety standards. … They also pay slave wages. The Chinese investments have also created only a limited number of skilled and unskilled jobs for Zambians, because most technical and managerial positions, as well as a significant number of unskilled jobs are reserved for, and held by the Chinese workers, who have come along with the investment. …. The situation is worsened by disparities in wages paid to the Chinese and Zambian workers doing the same jobs, with the Chinese being paid substantially more." (source: http://maravi.blogspot.com/2007/10/zambia-has-fallen-prey-to-unscrupulous.html)

In one incident in August 2006, Chinese managers allegedly even opened fire on African workers, killing five of them. The circumstances of the event are controversial though, and the Chinese blame the Zambian police for the deaths. Given China's general track record for human rights abuses, the least that is sure is that public opinion was soon to be to the Chinese's disfavour. (source: http://www.ibtimes.com/articles/20060809/china-africa-mining-investment.htm)

Compare this to the schools, medical facilities and community services set up by Bougainville Copper during the 1970s (see photos and download the 20 page company brochure dating 1973 by clicking here).

Given all that, one ends up realizing, that however Rio Tinto might still be lacking in one or the other area, it clearly is the lesser evil when speaking about multi-billion mining companies (even a potential Chinese take-over of Rio Tinto wouldn't change the fact that it's a Western company). Bougainville, take your pick!

Dealing with the devil you know, might just be preferable to getting an altogether new player into Bougainville. That's besides the fact, that there are some very clear legal and political issues coming into play.

For one, Bougainville is suffering under a continued economic crisis. The island of 200,000 currently simply has no means of generating income for its newly found government, the Autonomous Bougainville Government (ABG). Besides subsistence farming, there is very little on Bougainville that would warrant the term 'economy'. Since it came into life on 15 June 2005, the ABG has overseen an economy that is flat on the ground.

Unfortunately, it has turned out that a return to some kind of romantic live-off-the-land economy isn't feasible. Rapid population growth is putting pressure on an island that looks lush as far as vegetation is concerned, but where it is actually quite difficult to eek out a living (Papua New Guinea used to be the world's hotspot for cannibalism simply because there are few sources for protein.

During the past 10 years, the population seems to have grown at an astounding rate, if the population figure given by the United Nations is correct (source: http://www.unpo.org/member_profile.php?id=11). There are not just a lot of very poor people on Bougainville, a high birth rate is actually still increasing the population number.

In order for the locals to live in anything but destitute misery, some kind of development needs to take place. This is not even to speak of an all-important political factor.

Bougainville aims for independence from Papua New Guinea. Being ethnically a state apart from Papua New Guinea, the national government has actually already agreed that a referendum on independence is to be held some time between 2011 and 2016. At that time, Bougainvilleans will get a chance to vote on becoming independent.

This period seemed a long time off when the Peace Treaty was signed in August 2001, but the time to hold the referendum is now approaching rapidly. Independence is what the majority of Bougainvilleans have wanted for decades, and the aim to have a bigger say in their own affairs was also one of the reasons for the civil war (as was recounted in chapter 1 of this report).

However, independence won't happen if Bougainville is by then still entirely dependent on foreign aid and funds provided by the national government. Aid sent to Bougainville currently makes up more than 95% of Bougainville's yearly government budget. In 2006, less than 5% of the government's budget was generated on the island. Everything else, were grants, soft loans and gifts from outside sources such as the Australian government and the EU.

Clearly, this is not the financial foundation on which someone can realistically erect an 'independent' nation – with independence meaning more than a separate country profile on the CIA's World Fact book. Despite being semi-autonomous, the CIA's very useful booklet on the world's countries and territories (http://www.cia.gov) tellingly still lists Bougainville as part of the Papua New Guinea's country profile. Bougainville could not sustain itself, if it became independent tomorrow.

That's besides the fact that the government of Papua New Guinea will not allow Bougainville to secede into some kind of anarchy. Unless both the economy and the government of Bougainville are put onto a firm footing, the island could come into a situation where it has nothing to sell to the world but its sovereignty. Would Papua New Guinea and Australia want to neighbour a small rogue nation where passports, banking licenses, terrorist training grounds and drug trafficking facilities are the mainstay of the economy? Certainly not.

Secondly, Bougainville Copper to this day owns what are legally valid mining and exploration rights for not just the Panguna mine, but for essentially all known potentially lucrative mining sites on Bougainville. It is the only company with exploration permits on the island.

Such property rights can't be revoked that simply. The national government of Papua New Guinea will only ever agree to release Bougainville into full independence, if these property rights are respected after the change-over. Papua New Guinea is itself seeking foreign investment, and it simply couldn't afford to disregard one of the biggest mining investor's property rights during the change-over process (if the proposed merger of Rio Tinto with BHP Biliton goes through, Papua New Guinea would have to upset no lesser a player than the world's largest public mining company).

Plus, even if the new government of Bougainville contemplated doing away with these property rights once it has gained full independence, it'd soon find itself even deeper in trouble than before. Mining on Bougainville is something that only large multinational companies have the finance and the expertise for. Expropriate one multinational, and the others are unlikely to ever show up on your doorstep. After all, they'd have to fear that as and when politics turns again, they'd be next in line for having their multi-billion investments taken away.

This would still leave one or the other less sensitive mining company interested in Bougainville. The most obvious candidates to move into Bougainville, if Bougainville Copper was stripped of its property rights, would be Chinese companies. The Chinese have few qualms, even about investing alongside African warlords.

However, who wants to have a non-scrupulous Chinese mining giant in their backyard?

If anything, Bougainville can consider itself lucky that it is Rio Tinto that owns the exclusive mining rights on their island.

The specific steps that are now necessary

The catalysts for change are all in place. Rio Tinto has the know-how, the financial resources and the necessary profit-motive to carry out a strategy that's somewhere along the lines of what I have described.

If Rio Tinto doesn't act on the potential that it owns on Bougainville, it'd fail to see a business opportunity of vast proportions. This is rather unlikely. For after all, Rio Tinto has not risen without reason to become one of the world's top 3 largest public mining companies. Also, comments such as the one about Bougainville Copper having adopted a "comprehensive plan to cover the coming 3 years" are clear indicators that Rio Tinto is already on the case.

That's besides the market price for Bougainville Copper shares indicating that the most important changes in nearly two decades are in the offing. God knows whether someone might simply have caught wind of things and is now building up a sizeable stake. In any case, the market is anticipating that good news is in the making. The chart pattern is all too clear (see page 36).

All that is needed now, is a clear and realistic action plan to be published for Bougainville.

To make it all work, these seem to be some of the prerequisites:

1) An immediate start to carrying out in-depth feasibility studies for cleaning up the damage in the tailings area.

If Bougainville Copper wanted to put a small portion of its vast cash hoard to really good use, this is an area where deploying some of the shareholders' funds would lead to massive goodwill being created on Bougainville. That's besides the tailings project potentially being lucrative for the company (or if isn't lucrative, then at least some parts of the clean-up process will be paid for by the recovered minerals). If it seemed worth investigating the economic feasibility of reprocessing the tailings back in 1978 when copper was trading at $0.691/pound and when technology was more than 29 years behind its current state of development, then unless it has already been started (which is even more likely), it'd even be justified for shareholders to demand that such a measure is investigated as soon as possible..

Anecdotal evidence also points towards that direction. It emerged recently, that locals had managed to recover 500 pounds of gold (worth US$10m) by carrying out alluvial gold mining. One wonders what modern-day mining technology could help recover from the area.

2) Studies to be carried out towards developing suitable ways for exploiting the remaining open-pit mineral resources at Panguna.

Bougainville (the island) needs funds, and it needs them now. If the path towards independence is to be taken in earnest, the government needs to get onto a solid financial footing as soon as possible. Given the moist tropical climate, the mining equipment at Panguna has by now been reduced to all but a heap of rust.. However, crucial factors for getting the Panguna mine back, to at least some level of operation, are still in place – from the harbour facilities in Arawa to the access road through the difficult mountainous terrain leading up to the Panguna mine.

The question needs to be evaluated, how fast and to what degree the remaining known and accessible copper and gold reserves can be mined; using which techniques, and at what required investment.

Such a study could well possibly come to the conclusion that primarily for political reasons, the mine is restarted with a limited, pre-defined lifespan. There could be room for a solution whereby Panguna is operated for, e.g., another 7-10 years only – with a view to using the proceeds towards kick-starting both Bougainville's independence as well as new, more sensible underground mining operations elsewhere on the island (see 3). Such an agreement could be made, with Bougainville Copper being obliged to reinvest

all profits made from the continued operation of the open pit mine into environmentally more sensitive underground mining. Dividends could then be postponed until they can be made from profits stemming from underground mining.

3) Studies to be carried out towards exploration work and developing less intrusive ways of mining on Bougainville.

There is a whole range of potential exploration sites on Bougainville. Curiously, it was a German government agency that back in the 1980s carried out another round of in-depth studies of potential mining sites on Bougainville. There are documents spanning some three decades relating to mining in areas other than Panguna.

Exploration is a much less intrusive form of activity, than mining itself. Reopening the mine would take several years anyway, so besides working on the tailing issue (see 1), Bougainville Copper could gradually develop some activities by getting new exploration underway. This would then also tie-in with any potential plan to retire the Panguna mine after a certain change-over period. As a side effect, ongoing exploration would almost certainly help lift the share price of Bougainville Copper, and thus make fund raising easier. By raising funds at a much higher share price, Rio Tinto can actually make the mine's reopening much cheaper for itself.

For parts of these discussions, Rio Tinto and Bougainville Copper can actually rely on talks that have already been underway for months.

For some of these talks, I have been a curious fly on the wall for a long time. Giving my long-standing interest in Bougainville, I have built up contacts to all sorts of people. Among them is one of the key members of the European Shareholders of Bougainville Copper (ESBC), an organization that acts as voice for a considerable number of German and European Bougainville Copper shareholders (controlling more than 5% of Bougainville Copper, according to their own estimate).

Their website www.friends-of-bougainville.com was programmed by my in-house IT guy, and in the 3 years since it was set up, it has served as a useful resource for finding the kind of information about Bougainville that's not necessarily available in the everyday media.

Among it, is a proposal by the Land Owner's Association of Bougainville.

You can read the entire Land Owner's Proposal by going to page 84 of this report. I included it in the appendix, because it ties in with the question how to best value Bougainville Copper shares. You will quickly notice, that as much as details are yet to be refined, there is a constructive discussion aimed at specific results.

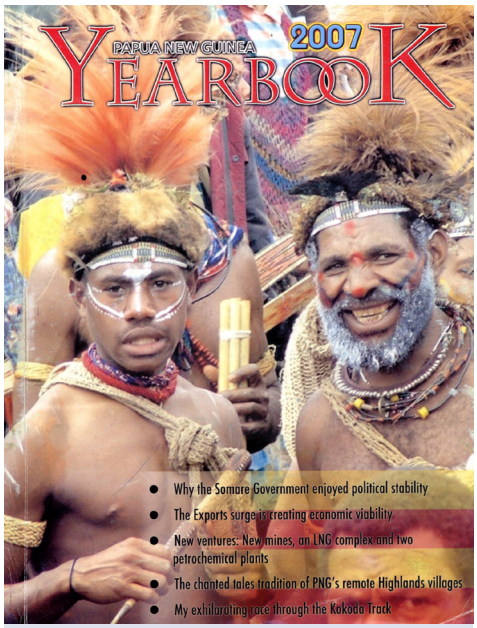
One of the many websources for further information on Bougainville
http://www.friends-of-bougainville.com

From the looks of it, these discussions have recently been taken a few steps further. If my sources on the ground are right, talks between Rio Tinto and various stakeholders in Papua New Guinea and on Bougainville were recently held. One of the most recent emails I received on the matter, spoke of a new, initial contract between Bougainville Copper and the Land Owners being virtually ready to sign now. This contract would be for hiring the land owners to clean out old machinery from the mining area i.e. it'd be a scrap metal salvaging operation.

In order to get things to move forward, there needs to be a continued and detailed dialogue between

- the Papua New Guinea government
- the Autonomous Bougainville Government
- the Land Owners
- the Tribal Chiefs
- Bougainville Copper
- Rio Tinto
- and suitable non-governmental organizations

All this needs to be a process aimed at building up trust, educating the other parties about what is needed to make it work for everyone so that a commercial model can be co-developed, establishing the feasibility of various practical measures and determining a longer-term path towards a solution that benefits everyone involved.



One of the sources used for researching this report (available through Amazon.com)

A vital part of this, will have to be a renegotiation of the Bougainville Copper Agreement (BCA). Despite dating back to 1967, this is the one law still relevant for regulating any mining on Bougainville. A review of the BCA is already under concrete preparation. As the Chairman of Bougainville Copper noted in his May 2007 report to the shareholders:

> "Bougainville Copper has already committed (as has the National Government) to contribute to the cost of the BCA review process. ... A lot of goodwill will be required by all sides and present indications are that there is a willingness to give it a go." (the entire statement is contained in the appendix of this report, see page 88)

As part of such a renegotiation, the entire subject of making the people of Bougainville co-owners of the mine will be one of the key aspects. It was back in May 1989, after violence first broke out, that the then Prime Minister actually offered 4.9% of Bougainville Copper to the land owners and the provincial government of the island. This idea needs to be taken up again, and taken further.

A good example for how such a process works, can be glanced from the Lihir gold mine that is located in the New Ireland province of Papua New Guinea. The agreement how to share the revenues of the Lihir mine was made in 1995, and it was supposed to be reviewed in 2000. The review process took a painfully long 7 years, but yielded a positive result.

Previously, 50% of the mine's proceeds were to go to the provincial government. Under the new agreement as it was made in May 2007, the provincial government will only get 20%. A further 20% each will go to the two districts most affected by the mine.

The institutions to go through a revision process are all in place

The Autonomous Government of Bougainville has established its own judiciary, legislature and executive arm, and since seven months ago there is even a local minerals department that can take responsibility for negotiating with Bougainville Copper on behalf of the locals.

Apparently, a former board member of Bougainville Copper has taken the position of Chairman of the Bougainville Minerals Resources Authority. This should provide focus and competence to the discussion. Everything is now in place, to finally achieve a great leap forward.

The all-important issue is, to end the stand-off and start talking about the future.

This needs to be a future where Bougainville is integrated into the rest of the world rather than where it is side-lined and kept at the fringes of Papua New Guinean and Australian politics. The year-long standstill

hurts all the stakeholders. There is even a point where the advice given by some non-governmental organizations, could lead to Bougainville being damaged due to political motivations being placed ahead of economic necessities.

Everything now needs to be geared towards practical solutions, rather than focussing on ideologies, politics and old animosities. From everything that is known so far, things are actually already going in this direction.

If Lihir can do it, so can Bougainville!

Bougainville has already started to move forward

As a matter of fact, some moves towards building a more lasting and substantial Bougainville economy are already under way. There are a whole range of recent changes on Bougainville, which indicate the island is finally moving forward again rather than backwards.

- 95% of the schools that were established or operating pre-conflict, are open again, 93% of all health institutions are open (albeit providing access to health services for just 35% of the population).
- In September, the Civil Aviation Authority of Papua New Guinea and the Autonomous Bougainville Government started talks on improving both of Bougainville's airports. A number of smaller airstrips is also earmarked for improvements.
- In October, the Caribbean based mobile phone company, Digicel, started to erect 27 masts across the island. The company has signed lease agreements with landowners, and the aim is to give the entire island affordable mobile phone coverage.
- A micro bank operating on Bougainville has started to issue savings books. Financial stability is crucial to help Bougainvilleans to establish more than just a subsistence-based economy.
- The Papua New Guinea Yearbook 2006 notes: "Even after the conflict, Bougainville has the highest life expectancy of any province in Papua New Guinea (59.6 years, in comparison with the national average of 55.2), the highest percentage of 7 to 12 year-olds enrolled in Grades 1 to 6 (95%, as against the national average of 73%), and while otherwise not at the top of the list, rates quite highly when set alongside other provinces on other measures. .... Despite many shortcomings, the main road networks in Bougainville, arguably, provide better service (they are more comprehensive and in a better state) than roads in some other parts of Papua New Guinea."

The potential of all this?

Simply flick through the proposal filed by the Land Owners to get a feeling for it. Even the preliminary and rough estimates worked out by the local land owners go to show, that there is enough money at stake to put the Bougainvillean economy on a firm footing and to thereby provide the Bougainvilleans with a basis for a prosperous life. So firm a footing actually, that gaining independence will eventually become nothing much more than one last step in the 10-year reconciliation process.

It seems that bit by bit, this unlucky island is finally getting back onto the right track.

Local politicians are warming up to the idea of mining

It comes as no surprise therefore, that a group of Bougainvillean decision-makers recently went onto a trip to investigate some of the very matters that are discussed in this report.

Right after the new Bougainville Minerals Resources Authority was established, a group comprising several Members of the Bougainvillean parliament, landowners from the area just around the Panguna mine, and local business representatives went to Indonesia to observe how mining is carried out at the US$1.8bn Nusa Tenggara copper and gold mine.

Hear the Chairman of Bougainville Copper speak about reopening the mine
ABC News video dating 9 May 2007

Download from http://www.abc.net.au/lateline/business/items/200705/s1918998.htm

The mine is operated by the American mining conglomerate, Newmont, and has already won six international awards for good environmental operations. The delegation headed by Finance and Mining Minister Mathias Salas visited the mine site and also the tailings system.

The *Post Courier* reported: "Members of the delegation said they were impressed with Newmont's operations ... as they saw many things that were completely opposite to what they had experienced when the Panguna mine was operating."

After the visit, members of the group declared their intention to go back and "talk to people in their own areas about what they saw."

Clearly, word about Bougainville Copper's impending resurgence is spreading.

No wonder then, that the share price recently started to come back into life too.

III. The difficult – but far from impossible – task of putting a price tag on a dormant mining company

New Yorker magazine might not at first appear to be the reading material of choice for a budding mining investor. However, useful information is often found in the most unexpected of sources.

The *New Yorker* is one of America's highest-profile magazines for reportage, criticism, essays, cartoons, poetry and fiction. In between the reportages, it recently featured a story that included vital facts about a man who some 16 years ago, temporarily held a prominent position within the entire Bougainville saga.

By looking at the people who previously shaped Bougainville Copper, it's possible to uncover vital clues to help put the current share price into perspective and for making a call about just how much the share might be worth in the future.

The right approach to analyze Bougainville Copper

Valuing Bougainville Copper is not as straightforward as valuing your run-off-the-mill company. At least, that's the general perception. As a matter of fact, it's not actually all that difficult. At the end of the day, a company is only ever worth the future profits that it is going to make, discounted to the present day using a suitable interest rate. There are various ways to approach the subject.

For this report, I ventured out and gathered all the information that could help to determine as precise a current and future value of the company, as anyone has determined during the past two decades.

There are two key areas to look at:

1) Historic information that provides anecdotal information about the value of the mine, including geologist's reports about areas that were only touched upon in the company's regulatory publications (such as the annual reports).
2) A valuation model that takes account of the financial investments needed to restart mining on Bougainville, and which discounts all future cashflow from such an operation.

To get a better grip of things, let's start with what has already been reported elsewhere. While doing so, we keep in mind that we also need to find a way to check on the plausibility of the estimate.

A value investor on the trail of undervalued reserves?

Chronologically, a Chicago investor who went by the name of Jay Pritzker was the first to do as much as putting a price tag on the dormant mine. In 1991, Pritzker approached Rio Tinto with a view to buying the mining giant's 53.58% stake in Bougainville.

The transaction that Pritzker wanted to push through was the talk of town. *Reuters*, the *Financial Times* and *Agence Europe* all reported about the potential for such a deal. At the time, Bougainville Copper had been closed for just 2 years and the mine was still very much present in the minds of the financial community.

What's more, Jay Pritzker was a name that made people sit up and listen. Despite being relatively media-shy, he had for a long time been known as one of the world's most cunning – and richest – investors specialized in finding undervalued assets.

The son of a lawyer, he had taken over a law firm that his father had already partially turned into an investment company. The law aspect always stayed with the firm, primarily because of clever offshore structures that the family had put into place before the US government created legislation to prevent such structures. The tax-efficient offshore trust of the Pritzker family was grand-fathered and to this day has saved the family billions of Dollars.

With a gene of cunning investors evidently running through the family, Jay Pritzker extended his father's investment firm into the forest business. In 1957, he added a hotel operation; which eventually was to

become the global Hyatt hotel chain (coincidentally, the hotel chain of choice for the frequently travelling author of this report).

A large part of the Pritzker family fortune had been earned through Jay Pritzker's voracious deal making. Over the course of his 50 years in business, he pulled off about 200 transactions involving the buying and selling of entire companies; with a particular view to companies in distress. His key goal always was to buy existing assets at less than their actual value. Ideally, he also wanted to save some taxes in the process.

With this in mind, it's noteworthy that in 1991, he launched an offer for Rio Tinto's stake in Bougainville Copper. Depending on which media report one assign's the most credibility to, he offered between US$700m and US$1.5bn for the 53.58% stake. That's between US$3.26 and US$6.98 per Bougainville Copper share (which at current exchange rates translates into A$3.78 to A$8.09 per share).

This does not go to say, that the share has the same value today. There are factors, which in the meantime have shifted some aspects of the equation upwards, and some downwards. For once, the company's machinery and processing plants on the ground were probably still worth quite some money (whilst today, it's mostly been reduced to rust, given the 5,000mm of rain that falls in the Panguna region every year). On the positive side, the world market price for copper was then just about US$1/pound, compared to US$3/pound today.

Luckily, Jay Pritzker (who died in 1999) wasn't the only figure to provide some clues as to the value of Bougainville Copper.

In 1997, a government official of Papua New Guinea commissioned a report to determine the value of Bougainville Copper's Panguna operation. The report concluded that if Panguna were restarted, the shares would be worth between US$2 and US$4. The Hong Kong brokerage firm, Jardine Fleming, most likely carried out the valuation. At the time, the copper price was trading at around US$1/pound.

Key aspects to take into account.

It's debatable whether a take-over offer that was made in 1991 has any credibility or meaning today. Equally, a report dating 1997 is hopelessly outdated in many aspects. Nonetheless, looking at these past developments does provide at least some contextual information. For everything else, we need to delve deeper into the subject matter.

To make things a bit easier to follow, this report starts with the most basic valuation methods and then gradually moves to a more in-depth model.

Generally speaking, the 3 key factors that have since then influenced the intrinsic value of Bougainville Copper are...

1) The decay of Bougainville Copper's operation on the ground:

Almost needless to say, whatever Bougainville Copper operated in terms of machinery and plants, has by now, almost certainly been reduced to a heap of scrap metal. Even what has not yet rusted away, is today hopelessly outdated technology. The company needs to make investments to replace these assets anyway, and especially so in light of technology having moved on (see 3).

Some of the old assets, however, are bound to still have some value. E.g., the 12-mile access road from the harbour town of Arawa to the Panguna mine is said to still be in good shape. The road had cost a staggering US$1m per mile when it was built in the early 1970s, and based on a purchasing power comparison that equates to US$5.2m per mile in today's prices (for a total of over US$60m). Combine mountainous terrain with a need to build a road that can withstand the weight of 105 ton trucks, and you quickly can ascertain the pertinent details about both the costs, as well as the economic value, of as simple a thing as a road.

The same most likely goes for certain harbour facilities and other parts of the infrastructure that were put into place at the time. Even the bare land owned by Bougainville Copper, is bound to have an intrinsic value. The company owns 57,000 hectares of land on Bougainville, including 650 hectares, a small airport,

as well as reserve land around the harbour in and around the island's capital, Arawa.

Overall though, for the sake of erring on the side of caution, this report assumes that all of these assets currently have a value of zero.

2) The rising copper price:

Mining companies have huge fixed costs, and little variable costs. Rising mineral prices, once they have passed a certain point, lead to rapidly rising profits.

Just as with 'Peak Oil', copper is unlikely to ever go back to its 1999 low of US$0.60/pound. The world is simply running out of easily accessible copper reserves (as described in great detail of page 36 of this report). The price of copper will of course, continue to undergo cyclical fluctuations. Overall however, everything points towards the higher copper price being here to stay.

The most comprehensive analysis of the copper market, was actually published by Rio Tinto just days before this report went online. Visit the recent 'Investor Presentation' on Rio Tinto's corporate website (http://www.riotinto.com), where you can download several documents outlining the past, present and future of the copper market.

The most noteworthy point is, that amidst the short-term fluctuations (driven in part by hedgefunds having taken stakes in commodities), there is a solid long-term trend towards increasing demand for copper. Emerging markets are one of the key reasons for this new long-term trend; or to be more precise, the rise of emerging markets together with the lack of easily accessible copper reserves.

3) Changes in technology

Bougainville Copper has always been a low-grade copper operation. In non-technical terms, the company needed to shift and process a lot of rock in order to find, comparatively, a small amount of minerals. The company only ever came into existence, because of the sheer magnitude of the copper deposits. Because of the large amount of copper in the ground and certain other factors, it became possible to create a mining operation with huge economies of scale. That way, even the relatively low-grade copper ore on Bougainville became a financially attractive proposition for a mining company. To just underline this fact to the degree that it deserves, the financial proposition of the time was based on a copper price of around US$0.50/pound!

For every single year during its 18-year history of operation, Bougainville Copper made a profit from mining. Even the relatively depressed copper and gold prices of the mid-1980s, when copper was trading in a range between US$0.50/pound and US$0.80/pound, did not lead to the company loosing money.

Technological progress will have two key effects onto Bougainville Copper: costs for producing copper will decrease; and this will turn copper deposits that were previously considered to be uneconomic to mine - into financially viable deposits.

Few people realize, that reserve figures published by mines are not always based on what has been found in the ground. If deposits are found that are not economic to extract, then they are simply not added to the reserves. When prices rises, metal deposits that were previously known but which had not been counted as part of the mine's reserves, can be added to the mine's reserves if they have in the meantime become economic to produce. That's why mines occasionally publish revised reserve figures.

The oft-cited reserve figures about Bougainville, are based on mid-1980s technology as well on as a comparatively low copper price. As per its last year of operation, the company reported having 691m tons of copper ore, with a concentration of 0.40% of copper (and with 0.47 grams of gold per ton thrown into it for good measure). The copper concentration is low by industry standards. However, even at the time when Bougainville Copper opened (when copper was trading at US$0.50/pound and gold was a mere US$58/ounce), the management determined that it could operate profitably as long as it processed copper ore with a grade of at least 0.3%. This information is contained in the memoirs of Paul Quodling, who between 1977 and 1987, served as the company's CEO. During the 1980s, the company even hinted at being able to profitably mine copper with as low a grade as 0.22%.

Since Bougainville Copper shut down, technology has moved on considerably. It is virtually impossible to quantify in figures at this stage the effect that these changes have on the future profitability of Bougainville Copper. However, some deductions can already be made:

a) Extension of the Panguna ore body:

The 1991 memoirs by Paul Quodling strongly hinted at there being more copper reserves than were previously thought, provided that an economic way is found to exploit lower grade ore. "The mineralization in the Panguna deposit does not have definite geological boundaries, but extends, albeit at lower grades, beyond the limits of the pit as initially planned. The viable utilisation of these areas of lower grade mineralization within the resource is dependent on the value of the metal content *(i.e. on the world market price for copper and gold, SL)* and the economies of extractions *(i.e. on the efficiency provided by new technology, SL)*."

Even on the current website is a (somewhat hidden) mention of there being more potential to Panguna, than just the known proven reserves: "Knowledge gained from *(further)* exploration would have allowed development options to be considered, which may have included consideration of the continuity of operations at Panguna." Put another way, even two decades ago the company was already on the case of looking beyond the existing open pit mine reserves.

Again, it is virtually impossible at this stage to come up with specific figures, of just how all this could change the reserve figures of Bougainville Copper. However, a general assessment can be derived from this development. There is a much better chance nowadays, to profitably mine even very low-grade copper deposits. This can only ever lead to another upwards revision of the reserve figures; as had already happened at Bougainville Copper during the 1970s and 1980s when the initial reserves of 900m tons of ore were increased by more than 50%.

b) Underground mining:

Few shareholders have ever made the effort, to read up on the characteristics of a so-called porphyry copper ore body. This is the kind of ore body that most of the world's copper mines consist of; including the Panguna mine.

Created through volcanic activities, such copper ore bodies are usually laid-down similarly to the shape of a tree. That's why mining operations that work a porphyry copper ore body near the surface, actually only ever cut off the 'tree's' top branches. The thicker stems are much further down in the ground.

This doesn't necessarily mean that the concentration increases when going further down. However, because of the thicker branches / stems being found further down, it generally becomes viable to make a decision to pursue just the higher-grading pathways.

The entire process how such porphyry copper ore bodies came into life, was nicely explained by Stephen J. Reynolds, Dept. of Geology, Arizona State University, on http://reynolds.asu.edu/sierra_cobre/p_formation.htm.

It seems almost certain, that Bougainville Copper has the potential to go underground. For going underground, it would probably use the block cave mining method described on page 49 of this report.

As Rio Tinto states on it's own website: "With copper and associated gold, *block cave mining* is mainly used on so called porphyry type deposits."

c) Mining prospects elsewhere on Bougainville

Bougainville Copper is the only mining company to own the exploration rights on Bougainville. It actually owns a whole number of exploration sites, as can best be seen from the map on page 35.

We had a geologist do an initial assessment of documents stored at the *Geologisches Institut Hanover*. It

seems realistic that the exploration area, "Atamo", is a "second Panguna" (as far as the size of its metal reserves is concerned).

An initial estimate based on the proven reserves in the ground

The question of just how much copper is in the ground, leads to an initial rough estimate of Bougainville Copper's intrinsic value.

As much as it must seem like a vague rule of thumb, the following valuation method is well established within the mining industry. It is even cited in up-to-date literature on valuing mining companies, such as Charles J. Moon's "Introduction to Mineral Exploration".

For valuing mineral reserves in the ground – without any ancillary operation or assets – using 10% of the reserves' market value is the generally accepted yardstick . In other words, if a gold exploration company has 1m ounces of gold in the ground and with gold trading at US$800/ounce, the reserve's value is in the region of $80m (1m * US$800 / 10). That's for the metal buried in the ground, and by its very nature, this calculation already includes a discounting to present value.

Coincidentally, just before this report was due to be published, a decent-sized real-life example for demonstrating the validity of this rule popped up in the media. The Bakyrchik gold mine in Kazakhstan was due to be floated in London. It has metal reserves worth $10bn at current market prices, and was supposed to be valued at around $1bn. That's despite the fact that this particular mine is known as "The Curse" because of a history of problems and because of the "severe risks" associated with it. One such risk is, that the mine's gold is "encased in volatile arsenopyrite and 4% carbon, both of which could damage the precious metal when mined." The mine had actually already been listed in London between 1993 und 1997, but it was delisted in 1997 because of its technical problems. Still, the planned valution stands at 10% of its metal reserve value.

As far as Bougainville Copper is concerned, this rule of thumb can be used for several different scenarios (all of which have been explained in more detail in chapter 2 of this report):

1) Valuing the reserves as they were published in 1989 (i.e. before the reserve-increasing effect of higher commodities prices and improved technology are taken into account).

2) Valuing the reserves as they were published in 1989 but with a view towards these reserve figures being in for an upward revision because of...

   a) The Panguna mine being extended underground (the "Palabora model").

   b) The Panguna mine being extended underground and the promising exploration area, Atamo, turning out to be a "second Panguna".

3) Valuing the reserves on the basis of the controversial open pit mine never being reopened. Instead, the Panguna mine is taken underground straight away and Atamo is proving to be a "second Panguna".

The table sets out the metal value for all of these scenarios.

The base case would be to say that Bougainville Copper will limit itself to reopening the existing open pit mine. In this case, the share would have to rise to A$7.77 to accurately reflect the company's intrinsic value (with any other potential being left at a zero valuation for the time being).

Needless to say, a combination of 'Pagnuna open pit + Panguna underground + Atamo' yields the highest potential. If our assumptions for this model are right, Bougainville Copper shares would have to rise to A$31 to accurately reflect the company's intrinsic value (with a value of zero attached to the further six exploration licenses).

Table 1 gives an overview of all possible 4 scenarios.

Estimated pure metal value of Bougainville Copper reserves* and valuation based on 10%-rule	Copper reserves* (tonnes)	Gold reserves* (ounces)	Pure metal value per share **	Valuation (per share) based on 10%-rule
Panguna reserves (open-pit)	2.7 mln	11.5 mln	77.67 AUD	7.77 AUD
Panguna reserves doubled by going underground	5.4 mln	23 mln	155.34 AUD	15.53 AUD
Panguna + Atamo being "new Panguna" (open-pit + underground)	10.8 mln	46 mln	310.68 AUD	31.07 AUD
Panguna + Atamo underground mining (NO open-pit mining)	8.1 mln	34.5 mln	233.01 AUD	23.30 AUD
* estimates ** Copper: 3.01 USD/lb, Gold: 802.40 USD/oz, USD/AUD 1.149, 401 mln shares				

Table 2 gives a sensitivity analysis where the effect of rising or falling metal values has been modelled for all possible 4 scenarios. E.g., if the price of copper and gold both fell by 20%, the scenario 'open pit + underground + Atamo' would yield an intrinsic value of A$24.86 per Bougainville Copper share. If copper and gold rose 20%, the company's value based on this model would rise to A$37.28.

Valuation based on "10%-rule" (AUD per share ***)			
Based on reserves as published in 1989	Price of copper and gold	*Based on reserves as of 1989 + upwards revision***	*Reserves as of 1989 + upwards revision + "Atamo" potential****
9.32 AUD	+20%	18.64 AUD	37.28 AUD
8.94 AUD	+15%	17.86 AUD	35.73 AUD
8.55 AUD	+10%	17.08 AUD	34.18 AUD
8.16 AUD	+5%	16.31 AUD	32.62 AUD
7.77 AUD	**base case***	**15.53 AUD**	31.07 AUD
7.38 AUD	-5%	14.75 AUD	29.52 AUD
6.99 AUD	-10%	13.98 AUD	27.96 AUD
6.60 AUD	-15%	13.20 AUD	26.41 AUD
6.22 AUD	-20%	12.42 AUD	24.86 AUD
* market prices as of 12/06/07 ** upwards revision: reserves as of 1989 x 2 ("reserves doubled") *** USD/AUD exchange rate: 1.149 **** "Atamo" potential: Panguna reserves as of 1989 + upwards revision + 100% Note: Atamo = "new Panguna"			

All of these figures clearly demonstrate, that no matter what exact course of action Bougainville Copper chooses, the current share price reflects a mere fraction of the company's underlying potential in any case.

The critical cross-examination of the metal reserve value.

Does the 10% rule hold up if a more sophisticated valuation method is used? By its very nature the 10% rule already includes a discounting to a net present value. However, it seemed wise to test these figures by creating a model based on discounted cashflow.

There are a number of key factors that need to be determined for creating a more in-depth valuation model. These range from the costs for purchasing new equipment required for starting the actual processing of the ore, right through to monies payable to local landowners.

Valuing companies in general, and mining companies in particular, is by no means an easy task. A mine's value ultimately depends on its geological characteristics. During the course of actually mining an area, in point of fact some of these are found to differ from the geologist's assumptions. Geologists can drill and analyze, but even their scientific data cannot yet be wholly accurate all the time, and there is still room to improve methods with every passing year. That's besides a dazzling array of above-ground factors that need to be determined.

That's why no valuation model can ever come up with the one definitive, all-encompassing price tag. If you like to know more about the vagaries of valuing mining companies, I'd recommended you read through the above-mentioned standard reference book. The mining operation valuation chapter in Charles J. Moon's book will give you a feel for the issues involved.

Nevertheless, it's entirely possible to at least verify how plausible certain figures are. This is what this chapter sets out to achieve – to come up with a realistic price tag and to check it within the context of what was previously known about Bougainville Copper.

The following pages show the entire set up assumptions and premises that I made, inorder to come up with a discounted cashflow model for Bougainville Copper. Every single aspect of this model could be discussed for hours, only to find that there simply is no definitive answer. What this model aims for, more than anything else, is to provide an initial yardstick. A yardstick that can then be put into context with the other existing figures and thus be tested for its plausibility.

A quick & dirty discounted cashflow analysis of Bougainville Copper:

We are estimating that it will take 2 years to get the mine back into production. The model is based on mining being resumed in 2010. In other words, the decision to return to mining on Bougainville would have to be made in the first half of 2008. The entire model factors-in a 2-year run-up to mining; i.e. it will hold true even if the year of recommencement changes to something other than 2010. If a decision were made in 2009 and mining resumed in 2011, the model as such would be just as valid.

The key assumptions for the discounted cashflow model:

1) Remaining mine life: 15 years.

2) Revenue: Based on the average yearly production of copper and gold during the 1986-88 period.

3) Price for copper and gold: Current market prices extrapolated over the mine's remaining lifetime.

4) Operating expenses: 100% increase as compared to the last year of production. Yearly increase of 3% from reopening the mine.

5) Depreciation: The investments of US$600m are written off over the remaining lifetime. These write-offs increase cashflow - though in our model this is not shown as it is based on distributable net earnings. However, investments will also be necessary during the lifetime of the mine (i.e. maintenance). We assume that free cashflow equals the investments in maintenance; an assumption that is probably too conservative.

6) Royalty to landowners: 3.5% of revenue (based on recent Landowners of Bougainville proposal; see appendix).

7) Interest: US$600m loan at 10%; loan taken out in several stages during 2008 and 2009- to be paid back in six equal instalments starting in 2010.

7) Tax rate: 30%.

8) Foreign exchange rates: Assumed to remain constant.

9) Discount rate: 14%.

10) Financial cushion: As a further measure to ensure that we err on the side of caution, 5% of net earnings are placed into a separate reserve (e.g. to pay for a switch to underground mining at a later stage).

Valuation of Panguna mine (open-pit)

(in million USD)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenue	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0	$1,556.0
Copper produced and shipped (million lbs)	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385
Price of copper (US$/lb)	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01
Gold produced and shipped (million oz)	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495	0.495
Price of gold (US$/oz)	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4	802.4
Operating and other expenses	$500.00	$515.00	$530.45	$546.36	$562.75	$579.64	$597.03	$614.94	$633.39	$652.39	$671.96	$692.12	$712.88	$734.27	$756.29
Operating expenses growth rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Depreciation	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0
Royalty (landowners) - 3.5% of sales	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5	$54.5
Interest expense	$60.0	$50.00	$40.00	$30.00	$20.00	$10.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
EBT	$901.6	$896.6	$891.1	$885.2	$878.8	$871.9	$864.6	$846.6	$828.2	$809.2	$789.6	$769.5	$748.7	$727.3	$705.3
Tax-rate	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Income tax	$270.5	$269.0	$267.3	$265.6	$263.6	$261.6	$259.4	$254.0	$248.5	$242.8	$236.9	$230.8	$224.6	$218.2	$211.6
Net earnings	$631.1	$627.6	$623.8	$619.6	$615.2	$610.4	$605.2	$592.6	$579.7	$566.4	$552.7	$538.6	$524.1	$509.1	$493.7
Debt repayment	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0									
Debt outstanding	$500.0	$400.0	$300.0	$200.0	$100.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
“financial cushion” in % of net earnings	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Net earnings distributable to shareholders	$499.5	$496.2	$492.6	$488.7	$484.4	$479.8	$574.9	$563.0	$550.7	$538.1	$525.1	$511.7	$497.9	$483.7	$469.0
Present value of net earnings distr. to shareholders	$384.4	$334.9	$291.7	$253.8	$220.7	$191.8	$201.5	$173.1	$148.6	$127.3	$109.0	$93.2	$79.5	$67.8	$57.6

Present Value of Panguna mine (open-pit)	**$2,734.87**	**AUD**	**EUR**
Present Value per BOC share	**$6.82**	**$7.84**	**4.63 €**
Discount rate	14.00%		
Shares outstanding (million)	401		
Capital investment in 08/09 = loan (in mln US$)	600		
Interest rate on debt outstanding	10.00%		
USD/AUD exchange rate	1.149		
USD/EUR exchange rate	0.679		

The result of a discounted cashflow model.

The price that the valuation model yields, is A$7.84 per Bougainville Copper share. That's the value for a Panguna mine that has been put back into operation with investments of US$600m; without digging underground and without starting any activities on one of the other seven exploration areas.

To just give yet two more scenarios, if the required investment were higher or lower, the company's net present value would come out as follows:

1) US$1.5bn required investment = A$5.99 net present value per share.

2) US$300m required investment = A$8.45 net present value per share.

A further plausibility test for these figures is provided by the historic figures about the mine.

1) The share was trading at more than A$5 before the first signs of the impending crisis. It reached an all-time high of US$5.50 in 1988. Nota bene that at the time, copper was trading at about one third of today's price. Because of the high fixed costs of a mine, higher metal prices have a disproportionately large effect on the company's profitability.

2) Pritzker offered A$3.78 to A$8.09 per share at a time when the mine was closed and copper was still trading at just about one third of today's price.

3) The finance ministry of Papua New Guinea determined a price of A$2.27 to A$5.54 per share, based on certain investment being necessary to restart the mine and at a time when the copper price was at just US$1/pound.

What the discounted cashflow model does not yet reflect is:

1) The potential of an underground mine underneath the existing Panguna mine. The value of such an underground operation can be taken from table 2; and this can then be added to the figures given above.

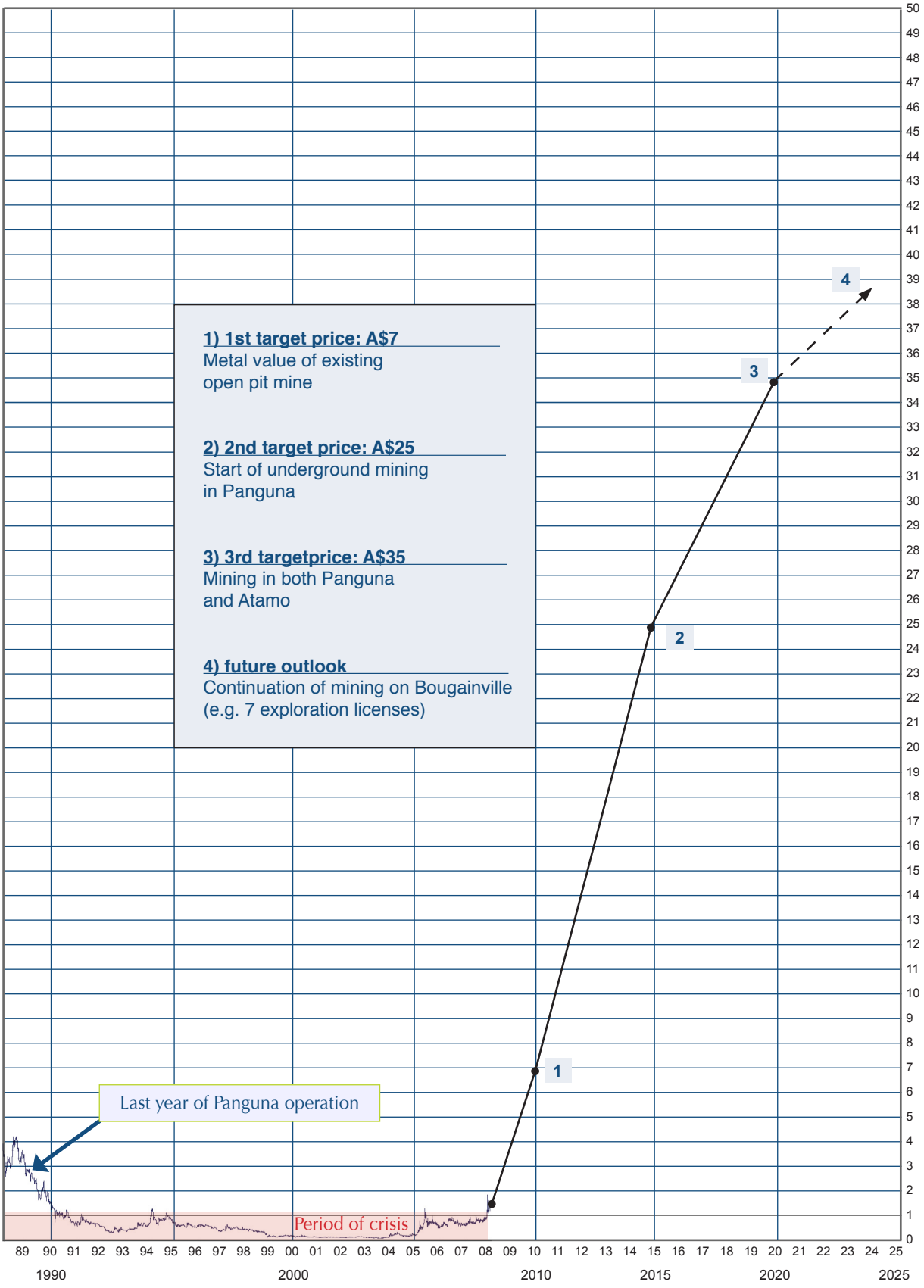
2) Bougainville Copper potentially starting other mining operations on Bougainville; see Chairman's statement on page 88 of this report.

3) The potential to profitably reclaim copper and gold from the mine's tailings area; see analysis on page 43 of this report. For the purpose of this report, it is assumed that revenues from reclaiming minerals in the tailings area will all be used for an environmental clean-up and other local investments.

4) The potential to mine minerals that previously were of no interest, such as molybdenum; which has been found in Bougainville and which has risen from US$2/pound to currently US$33/pound since 2002. Bougainville Copper had carried out a feasibility study during the 1970s, to determine if molybdenum could profitably be mined on the island. At the time, the answer was "no". The much higher price for this commodity, which is also to a certain extent a by-product of the existing mine, might have changed the situation.

A forward-looking share price chart for Bougainville – one that includes some assumption about the time frame to realize this potential as well as the potential profits – would look like this:

- please turn -


1) 1st target price: A$7
Metal value of existing
open pit mine
2) 2nd target price: A$25
Start of underground mining
in Panguna
3) 3rd targetprice: A$35
Mining in both Panguna
and Atamo
4) future outlook
Continuation of mining on Bougainville
(e.g. 7 exploration licenses)
1
2
3
4
Last year of Panguna operation
Period of crisis
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
1990
2000
2010
2015
2020
2025

Whilst all these are models and projections, one point seems to be entirely beyond doubt: Bougainville Copper has massive unused potential, most of which is based on concepts that have already gained a reasonable degree of certainty due to past and present information.

How to fund the operation?

Rio Tinto has in the past often made the statement, that the restarting of Bougainville Copper's Panguna operation would require between US$600m and US$1.5bn. The figure has changed over time, and from the looks of it these changes were not necessarily the result of in-depth planning. As a matter of fact, Bougainville Copper could have a strategic interest in over-stating this figure, as it is currently haggling with the revenue authorities of Papua New Guinea over an unresolved tax claim.

A recent media report spoke of US$300m, though without presenting concrete evidence how the figure was derived and instead speaking of market rumours. Without doubt, major investments are necessary to get mining underway once more. However, the absolute sum required should not pose a major hurdle.

On a very basic level of analysis, Rio Tinto has US$18bn in equity. More importantly, whether a project can ultimately be financed only ever hinges on the expected return. If returns are high enough, money can be raised on the capital markets.

Bougainville Copper is in an advantageous situation, insofar as it is separately listed on the stock market. As a listed company, it is much easier to start a fund raising. Rio Tinto could even have an interest in as high a share price as possible, so as to not have to come up with any money itself – and to instead let outside investors finance the restarting of the Panguna mine.

Quite importantly, Bougainville Copper, in the strictest sense of the word, is even now far from a dormant company. The mining operation is dormant for sure, but the company has always kept a considerable cash reserve; which the management has invested into a mixture of interest-bearing products as well as shares (mostly related to the commodities sector).

The company has about A$75m in net financial reserves. With 401m shares outstanding, this equates to about A$0.19 per share. These reserves should be sufficient to kick-start some of the processes that this report anticipates.

Is BHP Billiton rendering Bougainville Copper shareholders a service?

It has often been speculated in the past, that Rio Tinto would be willing to sell its stake in Bougainville Copper. At times, even the company itself said, that it was planning to divest its stake.

Frankly, I believe there was never any substance to such rumours and intentions.

What is beyond mere speculations, is that Bougainville Copper has enormous potential for value creation. However, a controversial asset like Bougainville Copper could only ever be sold at a price similar to that of a distressed asset. If Rio Tinto did indeed sell its stake in Bougainville Copper, it'd get enormous flak from its shareholders if the new owner subsequently made enormous gains on the back of a revived mining operation on Bougainville. How could it have justified holding on to Bougainville Copper for nearly two decades, only to sell out when things finally started to move forward? This is all the more true, now that Rio Tinto has opened its books to its shareholders in an aim to demonstrate that it is much better at creating value than its current suitor, BHP Billiton.

With that in mind, shareholders of Bougainville Copper might actually have to thank BHP Billiton for its bid approach. If anything, Rio Tinto's need to realize the hidden potential of Bougainville Copper should have become all the more urgent.

Tellingly enough, Rio Tinto has even started to list Bougainville Copper among the list of projects where it has scope for value creation. During recent years, the company had generally been very coy about communicating even just the existence of its stake in the controversial mine. In its recent investor presentation, however, the dormant copper mine made an initial re-appearance.

On a world map showing Rio Tinto's projects – titled "the upside is ours" – a tiny dot appears right where that little copper island is.

Clearly, Rio Tinto is putting Bougainville back onto the map.

IV. Bougainville Copper: ADRs, Ordinary Shares and everything else you need to know

Bougainville Copper is a funny animal of a company, in more ways than one. This holds true for its share structure too.

Investors can buy and sell their stake in Bougainville on three different continents, with trading in Bougainville Copper virtually going on 24 hours a day. Ironically, it is this ancient company that has already moved into the 21st century world of non-stop trading.

Investors can trade in...

- Sydney – where the Ordinary Shares are listed (ticker symbol "BOC").
- The German OTC markets in Berlin, Frankfurt, Munich and Stuttgart; where both the ordinary shares (local security code / "WKN" 852 652) as well as the ADRs (local security code / "WKN" 867 948) are traded.
- The US OTC Market, where both the ADRs (ticker symbol "BOCOY") and the Ordinary shares (ticker symbol "BOCOF") are traded.

Whilst having choice is generally a good thing, in the case of Bougainville Copper, too much choice can also lead to confusion.

The ADRs are, technically speaking, a substitute for ordinary shares. The American bank issuing these ADRs, is obliged to hold one ordinary share of Bougainville Copper for each ADR that it has outstanding. These instruments are a legacy issue from a time long past. They were created when American investors did not have easy access to the stock market in Australia. By creating an ADR, the issuing bank could give US investors easy access to Bougainville Copper whilst also earning some commissions for itself.

What investors essentially need to know, boils down to this:

- ADRs and Ordinary Shares are equivalent when it comes to the percentage stake that each one of them gives its owner in the business. On the surface of it, ADRs and ordinary shares are the same.

Name	Bougainville Copper Ltd.
Major shareholders	Rio Tinto (53.58%), Papua New Guinea (19.06%), free float (27.36%, of which >5% is represented through the European Shareholders of Bougainville Copper)
Stock markets	Sydney (Ordinary Shares), Berlin, Frankfurt, Munich, Stuttgart (Ordinary Shares and ADRs) US OTC Market (ADRs)
Ticker symbols	Sydney: "BOC" Germany: WKN 852 652 (Ordinary Shares) and WKN 867 948 (ADRs) USA: "BOCOF" (Ordinary Shares) and "BOCOY" (ADRs)
Outstanding shares:	401,062,500
Share Price:	A$1.49
Market Cap	A$597m
Market Cap of Free Float	A$163m
Company website	www.bougainvillecopper.com.pg

- What ADRs do not offer, is the right to vote at the shareholders' meeting. The bank acting as the issuer / depository of the ADRs holds the votes, not the owners of the ADRs. In other words, by buying the ADRs you get a stake in the business but you do not get a say in the business.
- If or when Bougainville Copper returns to paying a dividend, the holders of the ADRs might be faced with the ADR-issuing bank charging a commission for passing on the dividend.

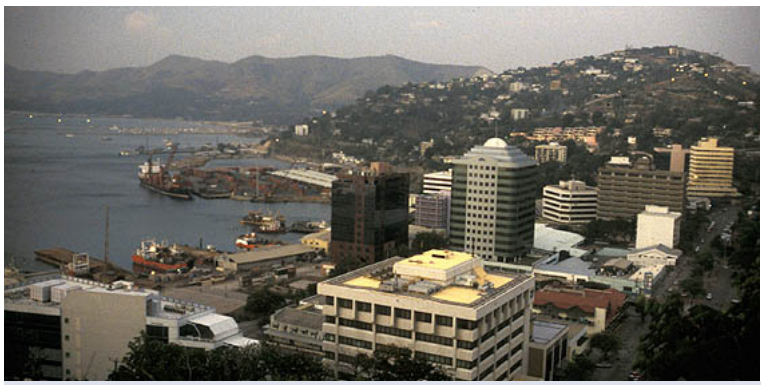
So whilst they represent the same percentage stake in the business (and should thus be trading at the same price), ordinary shares are technically speaking the more attractive instrument.

However, there still is a good case for buying ADRs. For a long time, ADRs have been trading at a discount to the price of the ordinary shares. Sometimes this discount was as high as 20%. It's hard to value the right to vote at the shareholders meeting. However, given that Rio Tinto controls the majority of shares, this right might not be worth all that much in real life. As to the commissions charged on dividends, these probably do not justify as steep a discount as the current one (at the time of going to press, the discount stood at about 3%-5%).

As yet another aspect, some banks and brokers do actually offer their customers the chance to "break up" the ADR and instead get the ordinary share that is contained in each ADR. That way, it is possible to buy the ADR and then get it converted into an ordinary share. Buying the ADRs at a discount and converting them into ordinary shares could be an attractive arbitrage opportunity. The catch that makes this kind of conversion attractive for only some investors, is that 1) banks/brokers will charge a fee for it, 2) the process takes several weeks or even months, and while the conversion is going on, the owner of the ADRs cannot sell their holding (leaving them effectively locked into the investment until such time that the ordinary shares are booked into the account instead).

Also, some banks and brokers simply refuse to offer this service to their clients as they just cannot be bothered.

The way forward, is to generally buy ordinary shares; as it is likely that Sydney will once again become the centre for trading Bougainville Copper – and in Sydney, only ordinary shares are traded. However, as soon as the discount for ADRs is more than 10%, it seems wise to invest at least some part, into ADRs. Eventually, there'll be more and more arbitrage going on between ADRs and ordinary shares (driven by those investors whose banks offer the conversion service), with the result of the discount narrowing again.



The location of the 2008 Bougainville Copper shareholders meeting

For investors wanting to attend and vote at the shareholders meeting, it's obligatory to buy anything but the ordinary shares. The next shareholders meeting is scheduled to take place around May 8th 2008, in Port Moresby in Papua New Guinea. Your humble author has every intention to go and attend it, so you know whom to turn to if you want to appoint a proxy for your votes (s.lorenz@undervalued-shares.com).

Afterword

This is the kind of place where your humble author searches for hidden value

Finding difficult investment situations and applying creative solutions to them, is what I make a living from. E.g., I recently acquired a listed Swiss investment company that had gone absolutely nowhere in years and which was in dire need of both its balance sheet and the business model being revised. Potential acquirers had looked at the company, only to turn their back on it because of hidden problems that they deemed unsolvable.

I took it over anyway. After I bought majority control of the company (together with a co-investor), the share price rose a staggering 300%. In the ensuing months, I succeeded in both cleaning up the old problems and putting together the initial plans for a rejuvenation of the company. The share price is holding up well (apparently the market has a hunch that we will do something worthwhile with the company), and whilst I do not have any plans to sell shares, it's nice to see how my money has grown on paper at least. After all, some serious amount of work went into this deal and into preparing the future of the company.

Investing in old companies that are getting new life injected into them, is one of my favourite investment areas. Different investors each have their own preferences. Another one of my general rules is that I don't like investing in shares that someone is trying to sell to me. This is never more true in any area, than it is in mining.

You might have heard the saying already, that a mine is in most cases a hole with a trickster next to it. As anyone who is actively investing in shares knows, there has recently been a flood of new mining exploration companies. Most of them are of dubious prospects. For a start, 95% of all mining exploration ventures fail to find anything but rocks and dirt. What's more, even when one of these companies does find a meaningful stash of resources, there are usually lots of options outstanding for management members and other privileged insiders.

Good luck to anyone who tries to pick the few winners.

Even if you do happen to identify the right mining prospect, there will more often than not be someone who is after your wallet. As soon as a meaningful find has been made, you will end up having having to defend your percentage stake against what is typically a thievishly greedy lot of directors.

Given all that, I have to admit to an old obsession of mine. That, of living to see a solution to the problems on Bougainville – that far-away island on the Eastern edge of the Pacific Rim.

With that, I don't just mean seeing Bougainville Copper return to mining and having its share price spiralling upwards. As I set out in great detail on the previous 78 pages, anyone who has a heart would never suggest anything close to a return to mining of the kind that once took place on Bougainville.

Rather, I am referring to something that is a creative all-round solution to the problems of the various parties involved.

Well, quite like what I recently achieved in Switzerland.

Granted, it's all on a much larger scale. But at the end of the day, it all boils down to applying one's grey cells in such a way, that in the end everyone comes out ahead. In business, nothing else gets you ahead faster than a deal where everyone will be coming out a winner.

What exactly the management of Rio Tinto and Bougainville Copper is working on these days, no one without inside access can know for sure. This report is, over and above all, aimed at injecting some new aspects into the ongoing debate. It's also aimed at providing at least some explanation for the rapidly rising share price – by means of explaining why those buyers, who have recently been staking shares during a period of rapidly rising prices, might not be so foolish after all.

ARBB: New life injected into an old company

I enjoy looking into new technologies and dissecting the inner workings of markets and industries. If both you and I had more time (I for writing, you for reading), I could have easily blown this up into a 500-page report. Bougainville Copper with all its intricate areas, is as wide a subject as the Panguna mine is deep.

Thus, if you have stayed with me through the entire report, please forgive me if you feel that I might have touched on one or the other area in too brief a form, or that I might even have left out some aspects. For anything that you feel is missing, feel free to email me. Or, simply log onto one of the email discussion boards where Bougainville Copper is talked about on a daily basis, and to a greater degree than I could possibly handle in between airline lounges, boardroom meetings and nightly research sessions.

One thing, however, I would kindly ask you to keep in mind:

Bougainville Copper is a share, that was once considered dead and which has now already risen a staggering 1,400% since its lowest price. Since I first reported about it in December 2004, it is up 400%.

Chances are, it will still keep rising.

This goes to show that new life can spring from derelict companies. It should also be a call to you as reader, to keep your eyes and ears open.

As unique an animal as Bougainville Copper is, there are bound to be other, similar stories out there in the great universe of worldwide 85,000 listed companies. I can't go through all of them. And, as a matter of fact, my initial attention for Bougainville Copper was actually started by a letter from a reader.

So if you come across something that appears old and rotten, but where you feel some useful assets might still be found, then do not hesitate to share the secret.

You can reach me by email: s.lorenz@arbb.ch

Sources for research

Undervalued-Shares.com's aim is to provide investment ideas that can't be found in the mainstream press. Investors are advised to undertake their own research before committing their capital to an investment (not the least as the author is not a regulated financial advisor; see terms of use).

To read up on additional information about Bougainville and Bougainville Copper, you may wish to use the following list of resources.

Historic documents about Bougainville available for download as pdf files:

1) Documents on my own server

Bougainville Copper Project – A collection of large-scale b/w photos with descriptions

Bougainville Copper – Progress in Action (a summary of the mine's construction phase)

Trainee Handbook – As used by Bougainville Copper to hire and train local staff

Bougainville Copper Careers – As used by Bougainville Copper to hire and train local staff

Charming Bouganville – The island in all its glory, taken from the Bougainville Copper annual report 1975

All documents available on: http://www.undervalued-shares.com/bougainville.cfm

2) Documents on the Server of the European Shareholders of Bougainville Copper

Bougainville – The Geology of a Treasure Island (German), 1988

Bougainville – The Establishment of a Copper Mine, 1973

A Survey on Bougainville (German), 1995

All documents available on: http://www.sturmpr.com/pageID_3415803.html

Literature:

Most of the following titles are out of print, but can easily be sourced on http://www.abebooks.com or other book search engines:

Breaking Spears & Mending Hearts – Peacemakers & Restorative Justice in Bougainville, by Pat Howley

Bougainville – A Pacific Solution, Report of the Visit of the Australian Parliamentary Delegation to Bougainville, 18-22 April 1994

Bougainville – A Personal History, by Douglas Oliver

Road and Development in Southwest Bougainville, by Marion W. Ward

An Unorthodox Soldier – Peace and War and the Sandline Affair, by Lieutenant-Colonel Tim Spicer

The Bougainville Crisis, by R.J. May and Matthew Spriggs

Bougainville 1988-98 – Five Searches for Security in the North Solomons Province of Papua New Guinea, by Karl Claxton

Black Islanders – A Personal Perspective of Bougainville 1937-1991, by Douglas Oliver

Enemies Within – Papua New Gunea, Australia, and the Sandline Crisis, by Mary-Louise O'Callaghan

The Sandline Affair – Politics and Mercenaries and the Bougainville Crisis, by Sean Dorney

Bougainville – The Establishment of a Copper Mine, by Bougainville Copper

Getting under the Skin – The Bougainville Copper Agreement and the Creation of the Panguna Mine, by Donald Denoon

Without a Gun – Austalians' Experiences Monitoring Peace in Bougainville, 1997-2001, by Monica Wehner and Donald Denoon

The Invasion of Bougainville – A Veteran's Account of the World War II Campaign, by Vernon „Muggs" Hayes

Mining and Indigenous Peoples in Australasia, by John Connell and Richard Howitt

Valueing Mining Companies – A Guide to the Assessment and Evaluation of Assets, Performance and Prospects, by Charles Kernot

Evaluating Mineral Projects, Applications and Misconceptions, by Thomas F. Torries

Introduction to Mineral Exploration, by Charles J. Moon

Zwei Jahre unter den Kannibalen der Salomo Inseln, by C. Ribbe

Deutsch Neuguinea, by E. Tappenbeck

Dreißig Jahre in der Südsee, by Richard Parkinson

Forschungen auf den Salomo Inseln und dem Bismarck-Archipel, by R. Thurnwald

Menschen der Südsee, by H. Thurnwald

Isles of the South Pacific – Papua and New Guinea, New Britain, New Ireland, Bougainville, by John Cockroft

Bougainville, five searches for security in the North Solomon province of Papua New Guinea, by Karl Claxton

Bougainville, A Biography, by Michael Ross

From the specific to the general, A casual analysis of the Bougainville Secessionist Crisis, sub-thesis submitted for the degree of Honours of Sociology, Quinton Clements, 1995

Geology of Bougainville and Buka Islands, New Guinea, Bureau of Mineral Resources, Geology and Geophysics, Bulletin No.93, by D.H. Blake and Y. Miezitis

Panguna, The Voice of Bougainville Copper, by Bougainville Copper

Bougainville in Transition, Development Studies Centre, Monograph no.7, by T.K. Moulik

Bougainville Island, North and South, Geological Series, Explanatory Notes, by D.H. Blake

Isle of Bougainville, by C. C. Deland

The mineral resources and the mining industry of the Mandated Territory of Papua-Newguinea, Mineral Resources Australian Bulletin, by N. H. Fisher

Geology of the mandated Territory of New Guinea, by H. I. Jensen

Local Government council in Bougainville, John Connell

Both sides of the Buka Passage, by B. Blackwood

Through New Guinea, by H. Caley-Webster

Report on a tour of Bougainville, by H.K. Colebatch and L. Cutts

The case for Bougainville Secession, by L. Haannett

Bougainvillean Nationalism, aspects of unity and discord, by A. Mamak and R. Bedford

Appendix: Landowners Proposal

THE OPPORTUNITY PRESENTED BY BCL AS A GOING CONCERN
(Updated on March 21, 2007)

1.SUMMARY

It is proposed to convert the present economic crisis in Bougainville to a turning point in the lives of all landowners as well as our brothers in Bougainville. The following Table shows Kina values to compare what the Old BCA delivered to Bougainvilleans with what the proposed New BCA will deliver.

	National Government Dividends	National Government Taxes	National Government Total Income	National Government Value of Shares	Bougainville (NSP in 88 ABG now) Annual Income	ABG Value Of Shares	Land-owners
OLD BCA 1988	K 20.6 M	K 93.2 M	K 113.8 M	K275 M	K5.5 M	Nil	K0.2 M
NEW BCA 2006	K92Million p.a. From 2008	K430 M p.a. from 2010	K 522 M p.a. From 2010	K1.4 Billion	K522 M p.a.from 2010	K1.4 Billion	K143 M royalty plus K92 M p.a. div = K235 m p.a from 2008. Plus Shares valued at K1.4 B

There is a big quantum leap in benefits for Bougainville:

- New BCA provides ABG/Bougainville income from dividends and taxation of about K522 Million p.a; this is a whopping increase from merely K5.5 Million received per annum in the pre 1988 era; This is a hundred fold increase.
- New BCA provides for Landowners to receive about K235 Million per annum from about 2008 compared with about K0.2 Million p.a. in the pre 1988 era. This is a 1000 fold increase
- New BCA provides equity ownership by ABG and Landowners each of some K1.4 Billion worth of shares in BCL compared with zero shares earlier. This will deliver prosperity and wealth to people who have had no access to good health, education and well being of future generations.

It is obvious that this will be the biggest step forward for Bougainville in their history and all Bougainvilleans need to be united in the pursuit of this goal. The two big hurdles to be overcome are:

- acceptance by the National Government
- acceptance by BCL

Bougainvilleans need to apply good wisdom and do what people would do elsewhere in the world. Say “Yes” to “Good Fortune” and Say “No” to “Misfortune” **Here is a mine worth K 4.4 Billion to us capable of producing K 1.2 Billion per annum (K522 Million each per annum for National Govt and ABG/Bougainvilleans and K235 Million per annum for Landowners),** for us per annum without us having to spend money on it. It will create thousand of jobs for us and provide a FREEPASS to every Bougainvillean for free education, free healthcare and good income opportunities..

Every day of inaction on our part costs us K3.5 million of lost revenue; .

II. Root Cause of the Problem

The root cause of the problem was the unfair distribution of income amongst the three main interest groups viz Landowners, North Solomon Provincial Government and the National Government. During its 17 years of life from 1972 to 1989, 58.4% of benefits received from the mine went to the National Government, and only 4.8% to the Provincial Government with merely 0.2% going to Landowners. The remaining 36.6% went to Non Government shareholders for their risk capital, technology and management; that was quite fair.

III. 1987 Production and Prices

In 1987 when there was no Additional Profits Tax, when average **copper price was US 81 cents per pound and gold price was USD 446.7 per troy ounce**, the Earnings per share were 24.83 USc (Earnings of USD 99.55 Million). Total concentrate produced was 585,500 Tonnes grading 30.4% Copper, and 25.1 grams per tonne of gold. This corresponds to 177,992 Tonnes of copper or 392 Million pounds worth USD 318 Million at US 81 c per pound plus 585,500 x 25.8/31.1 = 485,720 troy ounces worth USD 217 Million.

IV. Assumptions

1) Current price of copper at USD3.02 per pound and gold at USD 654 per troy ounce.
2) A capital investment of USD 1,500 Million which will be made wholly via loans by BCL at an interest rate of 6.5% per annum, with loan repayment in about 6 years of over USD 300 Million per annum. In Year 1 the interest cost would be USD 97.5 Million. The loan of USD 1500 Million would be fully repaid in six years from profits.
3) No new shares will be issued by BCL. (This will help in maximizing the value of shares as well as Dividends received by the National Government, ABG and Landowners). The 76.4 million shares owned by the National Govt of 76.4 million shares will be divided in three tranches of 25.48 million each for National Govt, People of Bougainville/ABG and Landowners
4) There shall be no dividend withholding tax.
5) A tax rate of 30% will apply from 2010.This tax will be split equally and paid directly by BCL to the ABG and the National Government
6) Current exchange rate of K1 equals US 35 c and Aus 44 cents.
7) Landowners will get royalty at 3.5% of sales per annum. This is higher than the rate of 2% provided in the Mining Act. As a quid pro quo there shall be no dividend withholding tax paid on shares of Bougainville Copper, which will also be beneficial to landowners as shareholders of BOC. The dividend withholding tax rate is currently 10% The mine life based on proven reserves is 14 years. But if the moratorium on

exploration is lifted, the mine life will extend to about 30 years. Also, that will provide greater benefits of royalty to the new landowners in whose leases those areas exist.

V. Valuation of Shares, Taxation & Royalty as a going concern

If we assume the same level of production as in 1987 and the current price of copper at USD 3.02 per pound and gold at USD 654 per troy ounce, the extra sales will be
392 Million pounds x [3.02-0.81] = USD 866 Million
485,720 x [654 – 446.7] = USD 101 Million
Incremental Sales = USD 866 + 101 = USD 967 Million
Total Sales per annum = 457 + 967 = USD 1424 Million

Royalty
It is proposed to pay a royalty of 3.5% of sales to landowners
This will be USD 50 Million or **K 143 Million per annum**
If we assume there are 4000 adult descendents of the original 510 titleholders, this corresponds to K 35,714 per annum or about K2,976 per adult landowner per month.
Royalties must be 3.5% Special Mining Lease Title landowners only; no sharing with ABG who are separately getting generous revenue from taxation (not available to Landowners).
These shall be split 70% to individual title holders and 30% to a Future Generation Fund or Non Renewable Resources Fund.
Income Tax
Income Tax in 1987 = USD 55.7 Million
Interest Cost per annum = USD 97.5 Million (6.5% interest rate on US$1.5 Billion)
Incremental Tax = 0.3 x [967 – 97.5- 50] = USD 245.9 Million
Tax per annum = 55.7 + 245.9 = USD 301.6 Million = **K861 Million**

Earnings per share
Incremental Profit After Tax = 0.7 x [967-97.5-50] = USD 574 Million
Total Profit After Tax = 100 + 574 = USD 674 Million
Total Earnings per share = USD 1.685 per share

Dividends per share
The loan of US$1.5 Billion will be fully repaid in 6 years. Let us assume a dividend payout ratio of 75%
Dividends per share in first 6 years while loan is being repaid = USD 1.26 or $A 1.91 or K 3.61
Dividends on 76.43 Million shares = **K 276 Million per annum**

Valuation of shares

Copper prices have increased from 81 US cents a pound in 1988 to about US 3.02 a pound and if the mine were running at the pre-89 capacity, earnings per share of 1.685USc would be about 6.7 times the then eps of 25 US cents a share.

In the late eighties the shares hit a high of $A7.20; on a similar valuation basis the shares could hit a high of $7.20 times 6.7 or $A48.24.

On a more conservative P/E multiple of 12, the shares should be valued at 12x 1.685 = USD 20.22 or AUD 24.96 provided no new shares are issued. This corresponds to K 57.77 per share.

The 76.43 Million shares would be valued at **K4,415 Million.** Hard facts requiring negotiation and distribution predominantly for Bougainvilleans:
Shares worth K4.4 billion plus Annual Income available to PNG/Bougainvilleans of K 1,280 Million per annum comprising:
- Annual Tax of some K861 Million
- Annual Dividends worth K276 Million
- Annual Royalty to landowners worth K143 Million

Appendix: AGM Statement of the Chairman

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Press Release

Chairman's Annual General Meeting Statement 2007

Results

The after tax profit, although modest at K3.7 million, was pleasing given the Board strategy is to generate annually sufficient dividend and interest income to cover operating expenses.

As a consequence of the company's investment strategy, the great bulk of investment gains will come in the form of unrealised increases in the value of the company's share portfolio which was K34 million for 2006. Accordingly Shareholder funds increased by K37.7 million to K378.2 million in 2006, over half of which is readily convertible into cash and provides the company flexibility to commence feasibility studies and other work aimed at achieving the company vision of returning to exploration and profitable mining in PNG. Some shareholders may be disappointed that a dividend has not been declared but the Board believes the retention of funds to apply towards realising the potential value locked up in the company's mining and exploration tenements on Bougainville will better serve the company in the foreseeable future.

Bougainville Assets

The Media has reported on other companies' plans for the Panguna ore body. I wish to reassure shareholders that "Special Mining Lease No. 1" over the Panguna mine area and associated leases, including seven adjacent exploration licences, are held in good standing solely by BCL. They are the only tenements for exploration or mining current on Bougainville.

BCL has not entered into any arrangement with any other resources company relating to exploration or mining save for the long standing management agreement with Rio Tinto and an agreement with Rio Tinto Exploration Limited to undertake a review of the companies exploration data. BCL has also entered into a technical assistance agreement, on a fee for service basis, with Rio Tinto. I don't dismiss the possibility that BCL will want partners for future exploration or mining but if and when the time comes the process will be transparent and BCL will make relevant public announcements. I encourage shareholders to visit the company website, www.BCL.com.pg, for information released by the company. Formal notices to the Australian Stock Exchange can be obtained either through the link on the BCL webpage or by searching "BOC" on the ASX website www.ASX.com.

Landowner and Government Negotiations

I have advised shareholders previously that the National Executive Council has agreed to engage with the company and Bougainville stakeholders in a 'review and renegotiation' of the Bougainville Copper Agreement (BCA). It is envisaged these processes will have two complementary components. Firstly there are technical aspects of the BCA that need addressing. The legislation that encompasses the BCA did not anticipate many of the events that occurred as a result of the suspension of mining in 1989. Among these events was the establishment of the new Autonomous Bougainville Government and its request to draw down mining rights current administered by the National Government. The second component will cover the pragmatic issues of landowner compensation, equity participation, profit sharing and environmental management of any new or re-established operations.

The Board does not favour approaching the question of reactivating exploration and mining in a piecemeal fashion. A comprehensive and collaborative plan with a high degree of consensus by the key stakeholders is highly desirable. The way to achieve this is for all parties to be work together to come up with a mutually acceptable and economically achievable plan. However BCL must reserve the right to veto any proposals agreed by various stakeholders that are not in the best interests of its shareholders. Although the proposed process stalled last year, for reasons outside the control of the company, I believe the new and now operational Mineral Resources Authority is the right vehicle to act as the independent champion of the process.

The Year Ahead

I mentioned in the Annual Report that the Board has adopted a comprehensive plan to cover the coming three years. What we hope to do is not guaranteed but given the apparent shift in attitude to exploration and mining among some landowners and Government members, Directors believe the time is right to prepare BCL to take advantage of opportunities that might arise.

A lot has to be agreed before exploration and mining can take place but the key players appear willing to at least look seriously at the possibilities. Put very simply this requires settling outstanding issues and agreeing terms for the future. Not so simple will be satisfying all the expectations.

BCL has already committed (as has the National Government) to contribute to the cost of the BCA review process. This may be expensive but is essential expenditure if BCL and the other parties are to take advantage of the economic opportunities now available in the resources sector. A lot of goodwill will be required by all sides and present indications are there is a willingness to give it a go.

The staff of Rio Tinto Minerals [PNG] Ltd, which manages the day to day affairs of the company from its Port Moresby office, have again done a great job with very limited resources. If my hopes for the coming year are fulfilled the team will need to be supported with additional resources.

To my fellow directors go my thanks for their support and guidance during the year.

As I mentioned in the Annual Report long serving director, David McLellan, is retiring at this Annual General meeting. I and the company owe David special thanks for the manner in which he has discharged his director duties over the past 8 years. David has been the

Chairman of the Audit Committee since its inception and has done an excellent job in ensuring the Committee has achieved the requirements of its Charter in a timely and quality fashion. He has also been a valued member of the Investment Committee where his good counsel has proved extremely beneficial. I wish David and his wife Margaret a very happy future.

Mr. John Leahy was appointed to the Board during the year. John has had a long association with PNG and BCL in a range of professional and voluntary capacities. John is required by the BCL constitution to submit himself for election today. I support the election of John Leahy as a director of the company.

Peter R Taylor
Chairman & Managing Director

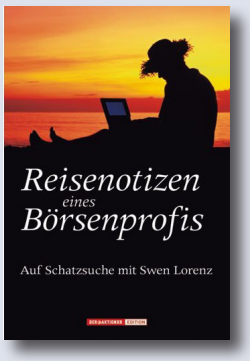
Wednesday, 9 May 2007

About the author:

Sven Lorenz (32) is a non-executive board member of *Verein zur Förderung der Aktionärsdemokratie eV* (Association for Enhancing Shareholder Democracy), that since 1991, has established itself as one of Germany's most active charitable organisations for protecting the legal rights of minority shareholders.

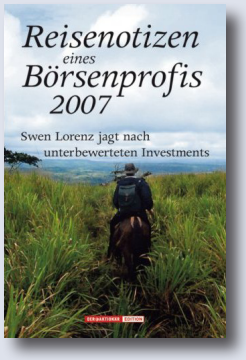
Sven has held non-executive directorships at companies active in asset management, publishing, property and IT.

He is a respected market commentator and analyst, and a published book author.



"Reisennotizen eines Börsenprofis – Auf Schatzsuche mit Swen Lorenz"

"Reisennotizen eines Börsenprofis 2007 – Swen Lorenz jagt nach unterbewerteten Investments"



His first two books came out in German…

… and are available on Amazon.de.

His first English language book will be published in 2008 and will be available through www.Undervalued-Shares.com

He is CEO of ARBB, a Zug-based asset management company.

Sven is actively engaged in conservation-related efforts. With his help as a fund-raising expert, the first vocational school of the famed Galapagos Islands was created (www.educando-en-galapagos.org). Additionally he is a member of the board of a trail-blazing eco-property development project in Galapagos.

He lives in the Channel Islands and London, where he manages his personal investments. Two thirds of the year he spends travelling around the world to find interesting investments for his personal portfolio as well as for his network of co-investors.

He can be reached by email: s.lorenz@arbb.ch

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