Development recast?

a review of the impact of the Rio Tinto ilmenite mine in Southern Madagascar

A report by Rod Harbinson, Head of Environment at Panos London, for Friends of the Earth, 2007.
Any reference should reflect this arrangement.

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Acronyms and abbreviations

CAE	Commission Administrative of Evaluation
COBA	Local management committee for forest areas outside conservation zones
DUP	Declaration of Public Utility (Déclaration d'Utilité Publique)
EDBM	Economic Development Board of Madagascar
EITI	Extractive Industries Transparency Initiative
FDI	Foreign Direct Investment
FIMPIA	Conservation area management committee
GoM	Government of Madagascar
IDA	International Development Association (of the World Bank)
IFA	International Finance Corporation (of the World Bank)
IIAP	Independent International Advisory Panel to QMM
MAP	Madagascar Action Plan
NGO	Non-Government Organisation
PAPs	Permanently Affected Peoples
PIC	Integrated Growth Poles Project (of the World Bank)
PPP	Public Private Partnership
PRSP	Poverty Reduction Strategy Paper of the International Monetary Fund
QMM	QIT Madagascar Mining S.A. – a Rio Tinto owned company
SEIA	Social and Environmental Impact Assessment

Glossary

Ariary – Malagasy currency.

Biodiversity hotspot – An area that contains at least 1,500 species of vascular plants classified as endemics and has to have lost over 70 percent of its original habitat. (www.biodiversityhotspots.org)

Dina – A set of rules mutually agreed by a community for managing local natural resources such as forests.

Ilmenite – The mineral ore of titanium dioxide. This mineral is used as an industrial whitener, and is commonly used in paint and plastics. Madagascar is believed to have the largest untapped ilmenite deposits in the world.

Invasive species – Non-native species disrupting and replacing native species. (www.biology-online.org/dictionary/Invasive_species)

Littoral forest – Coastal moist forest habitat found on sandy soils and characterised by high species diversity. In Madagascar its easy coastal accessibility has made it vulnerable to human disturbance and very little remains.

Matrix heathland – Contains species distinct from the littoral forest and that it is characterised by different soil composition.

Monazite – A reddish- or yellowish-brown mineral, a phosphate of cerium and lanthanum $(Ce,La)PO_4$: the principal ore of thorium. It is radioactive in its natural form and currently has a low mineral value. (http://dictionary.reference.com/browse/monazite)

Open cast strip mining – A process of extracting rock or minerals from a cavity in the earth close to the surface. The method requires removal of the surface layer to access the deposit.

Pioneer species – A species that colonises an uninhabited area and that starts an ecological cycle in which many other species become established. (www.biologyonline.org/dictionary/Pioneer_species)

Silica – The dioxide form of silicon (SiO_2) occurring especially as quartz sand, flint, and agate: used usually in the form of its prepared white powder chiefly in the manufacture of glass, water glass, ceramics, and abrasives. (http://dictionary.reference.com/browse/silica)

Smelting – To melt or fuse (ores) in order to separate the metallic constituents. (http://dictionary.reference.com/browse/smelting)

Zircon – A common mineral, zirconium silicate ($ZrSiO_4$) occurring in small tetragonal crystals or grains of various colours, usually opaque: used as a refractory when opaque and as a gem when transparent. http://dictionary.reference.com/browse/zircon)

Madagascar country profile

Area: 587,040 sq.km
Population: 18.6 million (est.2006)
Capital city: Antananarivo
People: Malagasy
Languages: Malagasy, French
Religion(s): Christianity (41 per cent) & indigenous beliefs; Islam (7 per cent)
Currency: Ariary. (The old Malagasy Franc ceased to exist in January 2006).
Major political parties: Tiako I Madagasikara (TIM), Firaisankinam-pirenena, Association pour la renaissance de Madagascar (AREMA), Leader-Fanilo, Renovation du partie social democrate (RPSD)
Head of State: President Marc Ravalomanana
Prime Minister: General Charles Rabemananjara
Membership of International Groupings/Organisations: African Union (AU), Common Market for Eastern and Southern Africa (COMESA), Indian Ocean Rim-Association for Regional Co-operation (IOR-ARC), Indian Ocean Commission (IOC), the Southern African Development Community (SADC), and the Francophone Organisation (OIF).

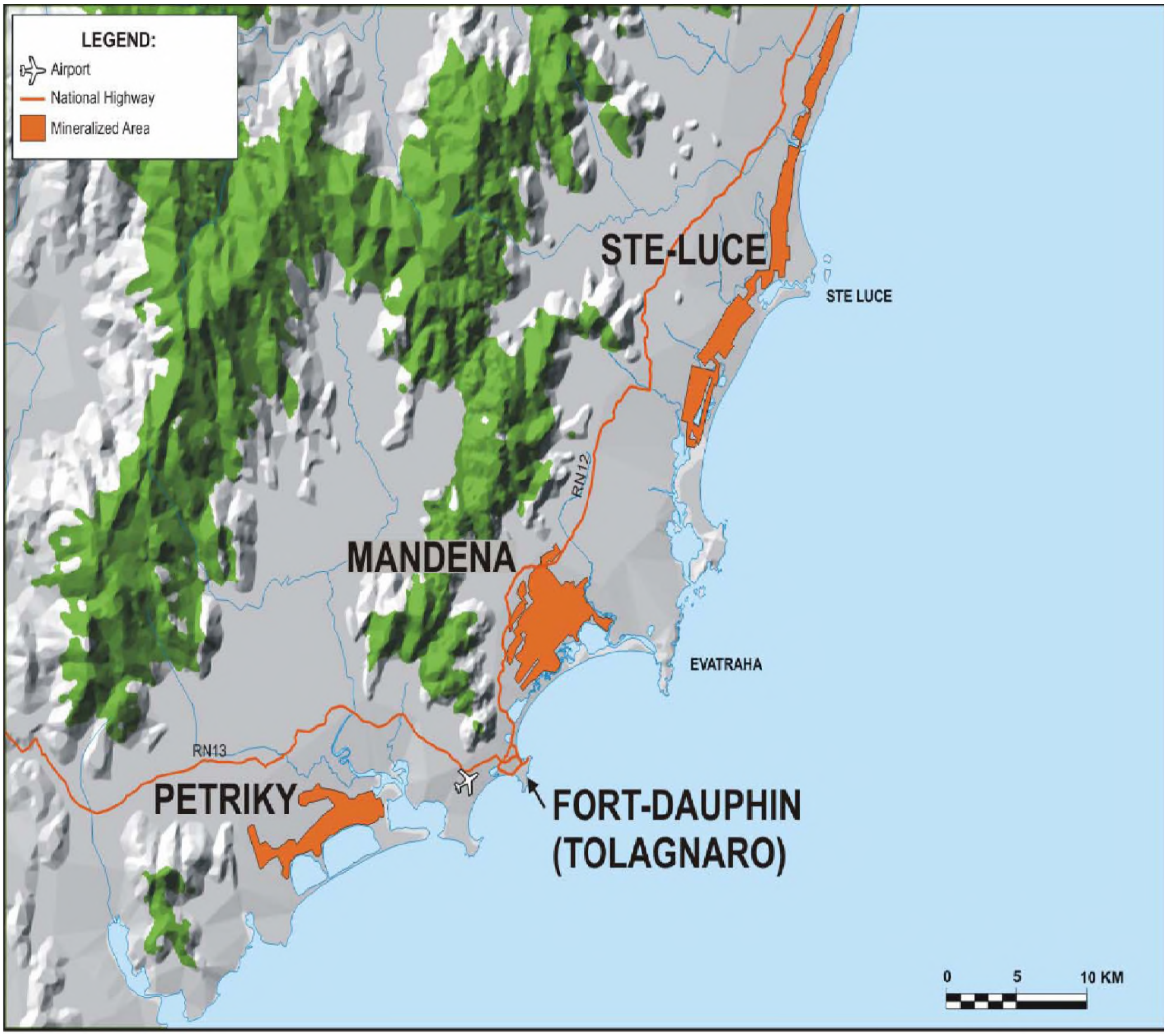
Basic economic facts

GDP: US$5 billion (2005 est)
GDP per head: US$900 (2005)
Annual growth: 4.7 per cent (2006 est)
Inflation: 18.3 per cent (2005)
Major industries: Mining, fishing, paper, garment-manufacturing, tourism, food/tobacco, chemicals, petrol refining, cement, metal work
Main Imports: Machinery & transport equipment, mineral fuels, foodstuffs, consumer goods
Main Exports: Coffee, shellfish, vanilla, fish, textiles/garments (Free Zone), cloves, pepper, cotton, chromite, graphite, sapphires
Main trading partners: France, US, Germany, Mauritius, China
Exchange rate: Ariary: US$ (2005 av) – 2,010.3

Source: UK Foreign Office

Figure 1.

Distribution of the mineral deposits, Anosy, Southern Madagascar.



Source: Rio Tinto Iron and Titanium Inc. – Madagascar Ilmenite Mine – presentation to MinSands Melbourne, 2005.

Introduction

In 2005 QIT Madagascar Mining S.A. (QMM) – a subsidiary of Rio Tinto - was granted approval by the Government of Madagascar to go ahead with an ilmenite (Titanium dioxide ore) mine near Fort Dauphin in the Anosy region in the South of the country. The deposit of at least 75 million tons will sustain mining operations for at least 40 years. Construction of the mine and associated infrastructure of roads and a deep sea port quickly got underway and first shipments of the ore to the Canadian smelting plant are scheduled for December 2008.

In its justification for the project QMM made various commitments to mitigating the environmental and social impacts brought about by the project and implementation of many of these are currently taking place. The mine will require the removal of extremely rare fragments of coastal littoral forest and matrix heathland. Open cast strip mining of the 15-18 metre deep deposit will be done using a dredge which will pump the silica from artificially flooded lakes into the adjacent separation plant. Here 5 per cent ilmenite and zircon will be separated from the silica, the remaining 95 per cent of which will be returned to the ground. The separation process will also involve quantities of radioactive monazite which, not being economically attractive, will all be returned to the ground.

The mine represents a potent symbol of globalisation. Owned by Rio Tinto, the third largest mining corporation in the world, the main economic rationale for its opening appears to have been the upward world demand for ilmenite fuelled by the booming Chinese economy (Cook, J. 2007).

Costing US$585 million, the project represents the largest foreign investment in Madagascar's history and is the first in a series of natural resource extraction projects that the country is developing together with the international mining sector and the World Bank. Exploitation of other deposits of ilmenite, nickel and bauxite are also planned.

Fundamental changes to the country's laws have been brokered by the World Bank to encourage inward private capital investments. While the World Bank continues to pay much attention to the project, it views the QMM mine as the catalyst of a highly ambitious 'integrated growth poles project' development programme for three regions it has earmarked in the country.

At the World Summit on Sustainable Development in Johannesburg 2002, the global compact was forged between private corporations and the UN with its supporting institutions. The central pillar of this compact was the concept of the Public Private Partnership (PPP). Since then PPP's have been implemented in many places throughout the world. The port construction project is held up as a high profile example of a PPP between the state and the private sector.

Because the PPP concept is relatively new, there has been little time to monitor and evaluate the experience of implementing such projects and to assess the extent to which they are living up to the expectations originally anticipated for them.

Senior companies in the mining sector have, in recent years, increased the level of sophistication in the way they deal with social and environmental issues. Companies claim that clear policies and commitments illustrate a greater level of social and environmental responsibility. Critics of the industry say that voluntary commitments are inadequate to ensure adherence to international codes of Corporate Social Responsibility (CSR) or company commitments specific to the project.

In either case, company compliance to commitments can only be assessed by scrutinising the realities created by project implementation on the ground. This report is an assessment of the effects of the QMM project on the ground according to some of the many stakeholders involved or affected by it, in the Fort Dauphin area of Southern Madagascar.

a. Multiple perceptions, contested realities

The report is intended to provide insights into the varied ways in which a range of stakeholders understand their situation. It demonstrates convergence of common understandings but also the sometimes extreme divergence of understanding and awareness between different groups. It is these differences that challenge all the actors involved to explore the reasons why they arise. This inevitably requires sophisticated use of communication processes which are much more than simply conveyors of information, but which also encompass multiple knowledges and meanings attributed to the perceptions of different stakeholders.

It assesses the impacts of the global on the local as perceived by a diversity of local stakeholders, some of whom are themselves 'outsiders' from the business and NGO communities. The findings reflecting interviews and focus groups, show that more than one reality is expressed in the differing perceptions of the stakeholders. They come from different cultural backgrounds and have different needs, ambitions and motivations.

A striking characteristic of this (and many other) development projects is the large disparity in wealth between different actors. All stakeholders are acutely aware of this and many bring their own, often very different, approaches and justifications for their actions in relation to the economic realities.

The wide range of stakeholders includes: landless poor people, marginalised local villagers, foreign construction workers; corporate, academic, civil society and government experts, and local business people. Perceptions were found to differ dramatically in a geographically confined area. A clear example of this was the extent of awareness of the mine project by people living in the locality. Engaged and educated stakeholders presumed that everyone was well aware of the project. Such presumptions, however, were found by the research to be misplaced because many local people had no, or only very little, idea about the dramatic changes taking place and the reasons for them.

b. Communication deficit

The research highlights that a communication deficit is not only the result of distance and access such as the classic case of distant unconnected rural communities being left out of the loop. In this case many of the stakeholders were neighbours in a small town where proximity was not the main issue. The gulf of communication was due to other social and cultural factors such as language, education, the way knowledges are conveyed and a host of other reasons.

Many stakeholders interviewed, stated unprompted, that lack of communication about the project remained a key problem. Differences in understandings about the project have already led to conflict and more subtle social undercurrents such as mistrust and fear are being aggravated by the lack of communication. One common effect of the deficit of clear factual information was the prevalence of rumour. The desire to plug gaps in information is often fulfilled by people piecing together fragments and snippets of news, hearsay and information gleaned from different sources. Once these become settled in a person's mind they create a reality detached from any facts that those in authority might want people to know. However, to conclude that such a collage of perceptions is either wrong or inaccurate is to miss the point, because it still remains that at a given point in time the perception understood by someone is their reality.

This report is a study of the opinions and perceptions of those interviewed. Effort has been put into achieving a balance of different perspectives, especially where controversial issues are concerned. It should be emphasised that the purpose of this report was not to seek to verify the truth of every claim made or opinion put forward but rather to show the differences between them, and to get insights as to why they occur.

In cases where extremely different opinions exist, establishing a common reality has been elusive. Conversely where there are common opinions across many or most stakeholders a common understanding of the situation has emerged. However, common understanding does not always equate with the truth and history is littered with such examples. So care must be taken not to blur the two by claiming that consensus is the creator of facts.

This report supposes that where perceptions of realities on a topic differ widely in a small area, enhanced and multi-faceted communication processes can, through time and effort, lead to common understandings. In this way communication may help communities of stakeholders to reach a position from where debate can move a situation forward so that stakeholder concerns are listened to and ideally acted upon and met.

This kind of communication process is ongoing in nature and one of the limitations of the report format used here is that it can give the reader a sense that the last page is the last word. This report does not have this intention. Instead it is the hope that the findings here will stimulate further steps in a growing, open and transparent communication process.

Chapter 1

Methodology and process

The field research took place over a two week period in the Fort Dauphin area of Anosy and the capital Antananarivo in February 2007. It comprised site visits, focus groups, interviews and collection of documentation.

Additional research took place in the UK during winter 2006-7, which included a review of the literature, email correspondence, a conference and telephone interviews.

Effort was made to include the widest possible diversity of stakeholders so that all points of view could be represented. Given the short duration of the field research it was not possible to interview some stakeholder groups, most notably: employees from some QMM contractors such as Daiho and Sodexho, local sex workers and some communities on or near the mine site which have been affected or may be in future.

Where possible, the author circulated a letter of intent, explaining the research and the role of Panos London, to potential interviewees in advance of the research visit. This also explains the role of the Andrew Lees Trust who distributed letters of introduction, and assisted with logistical aspects of the visit to ensure that the researcher was able to access and spend time with varied groups of stakeholders offering different opinions about the mine.

As the researcher and author is English speaking many of the interviews took place via a translator. Most of them were translated by a professional translator recruited in Antananarivo who has expertise in both French and official Malagasy. For some interviews it was considered that a local Anosy translator would have a greater grasp of the Anosy dialect and would also be more readily received by Anosy people than an outsider from the capital, so two translators recruited in Fort Dauphin undertook some of the translations.

Fifty interviews involving 63 people took place in Madagascar. Most of these took place with individuals face-to-face with a few held in small groups. Of the 63 people, twenty were women. Three focus groups were held in village communities, involving 59 people of mixed gender though with a majority of men.

In total 123 people were either interviewed or took part in focus group discussions in which they had the opportunity to contribute their opinions.

People interviewed or in focus groups were from the following sectors:

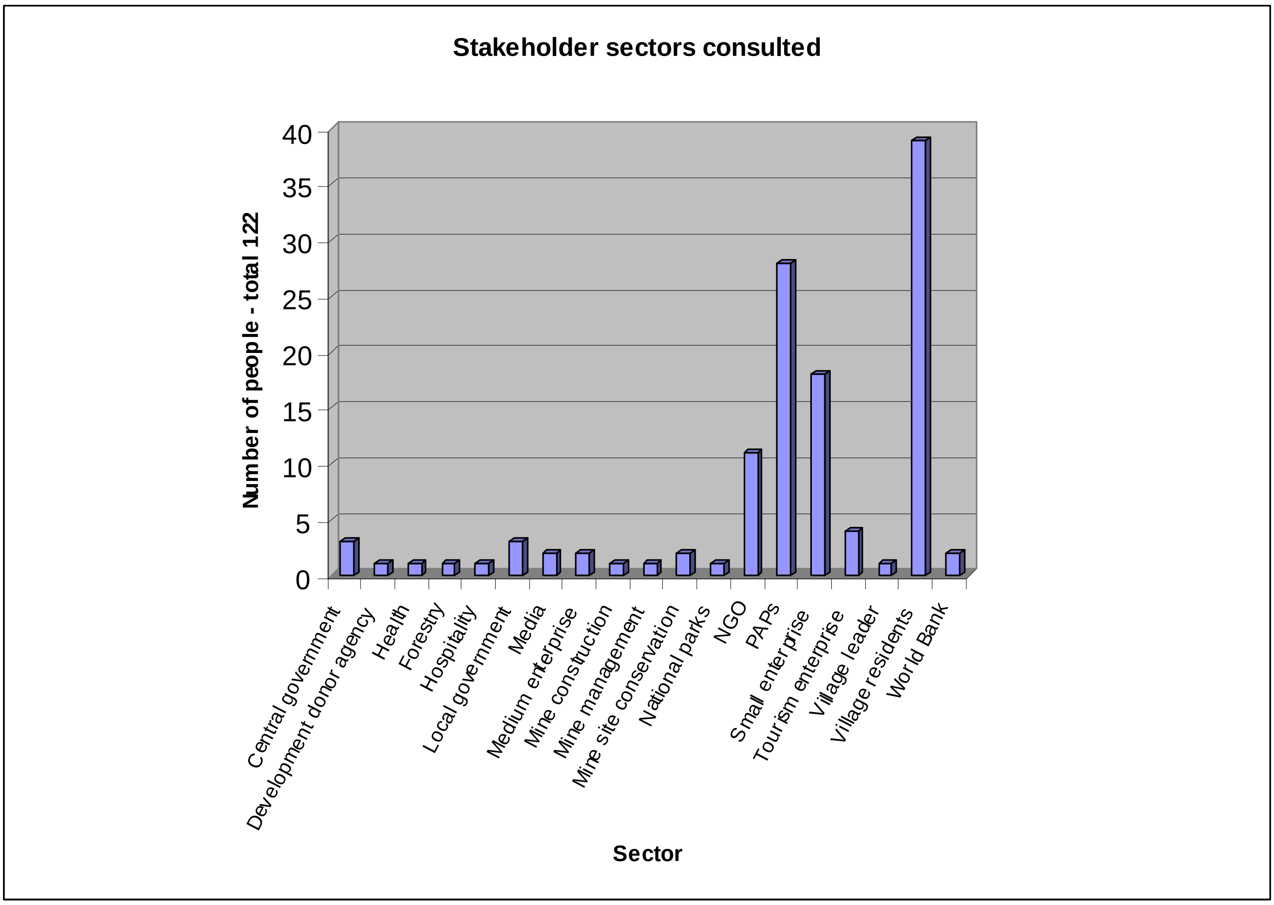


Figure 2.

Interviews were minuted and in many cases recorded and later transcribed verbatim. Consent to record or quote the interviewee by name was asked at the beginning of each interview, and a number of interviewees declined to grant their consent to either one or both of these requests.

In order to maintain consistency and impartiality it was decided not to attribute quotes to individual names but instead to the stakeholder group from which they came. One of the main reasons for this was that some of those who declined expressed fears about the implications that it might have on their position or reputation. Sources of the published literature are supplied.

The questions asked were based on a core question set developed prior to the visit and roughly reflecting this report's chapter headings. This core set was tailored and adapted to each specific interview. It also evolved as new questions arose and factual questions were answered. This element of flexibility was supplemented by an awareness of the need to provide spaces to interviewees to express what was on their mind and therefore attention was given to avoid leading the interviews or dominating them with too many questions.

As one of the main objectives of the exercise was to assess the level of awareness about the mining project and associated development plans, care was taken not to introduce undue levels of information in the questions. For example, instead of asking people: 'What do you think of the changes brought about by the QMM mining project at Mandena?', people were asked 'Have you noticed any changes in and around town in the past few years?' If answered affirmatively a follow-on question would ask people to, 'Please describe these changes.' The degree and types of changes that have taken place since mining operations began was a key objective, and some of the questions invited interviewees to compare how aspects of their life had changed over the past few years, encompassing life before and since mine development. Progressing beyond asking about the observed changes, interviewers were then invited to give their opinions about the future opportunities and threats that they anticipated. This was considered important in order to assess the interviewee's level of awareness about the scale and depth of the changes planned to the region by the mine and associated development projects.

Evidence was also gathered by way of empirical observation particularly at the mine, conservation sites and villages of people affected or due to be affected in future.

The effects of the mine project are far-reaching and influence many aspects of the social and environmental fabric of the region. The absence of reference to some issues here is by no means intended to indicate their lack of importance, but that they are simply beyond the scope of this report. Notable amongst these as identified in the literature and by interviewees are the weir near Evatraha, impacts on the marine environment and secondary impacts on regional eco-systems.

Chapter 2

Economic factors

> *'Mineral projects present different socio-economic impacts (or linkages) on the host economy compared to most agricultural, manufacturing, and service projects. This is because mining projects operate on unusually strong economies of scale, which dictate large investments that employ a small skilled workforce over a finite period of time, determined by the mineral reserves. As a result, the revenue flow from mining, compared with most economic activity, is heavily skewed toward the return on capital and the taxation of this return' (Auty, R. 2007).*

Economic factors provide the primary motivation for those involved to embark on a project of this scale. In this chapter the financial arrangements agreed between the contracting parties are explored and the value of the deposit is estimated. Assumptions based on these variables are then used to offer a number of scenarios to indicate the potential income to the Malagasy Government and Rio Tinto from the mining revenues and estimated allocations are presented. Some of the risks involved in entering the deal are then discussed.

a. Financial arrangement

The 'framework agreement' between Rio Tinto-owned Canadian company, Qit Fer, and the Malagasy Government (GoM) effectively created Qit Fer Malagasy Minerals SA (QMM). The document which was forthcoming from QMM is not a stand-alone document as many of its provisions refer to and are dependent on the shareholder agreement which was not available.

The mine and associated infrastructure will require an expected investment of US$585 million (Cook, J. 2007) to enable exploitation to take place. Rio Tinto will put up the major part of this amount. As part of the arrangement it has offered the GoM an option to maintain a 20 per cent capital share in QMM. According to a QMM spokesperson, should the Government wish to proceed with this capital share option it will be based on the capital value of QMM at the time of the first ilmenite shipment (currently scheduled for the end of 2008). This assessment will take into consideration all project investment costs to date, which are anticipated to be within a 10 per cent variance of the cost estimate. Based on the current estimate the Malagasy Government would have to find approximately US$117million to realise its full 20 per cent capital share option with Rio Tinto funding the US$468m remainder. In addition the Malagasy Government has already committed to a contribution of US$35 million loaned from the International Development Association (IDA) of the World Bank and earmarked as a contribution to the port construction. If the GoM were to exercise its share option it is currently unclear how it would raise funds for this contribution, though a QMM representative speculated that loans could be sought from international financial institutions such as those in Europe or the World Bank.

Some of those interviewed assumed that the 20 per cent capital share had been given to the Government based on the value of the 6000ha of land that the deposit covers and its valuable mineral content and this assumption is supported by the literature (Parker, V. 2004). However, according to the Framework Agreement between Qit Fer and the GoM and interviews with QMM and the World Bank, this is not the case.

QMM, (2001) estimates output of 750,000 tons of ilmenite per year over the mine life of at least 40 years. The ilmenite contains about 60 per cent titanium dioxide. A smaller amount of 25,000 tons of Zircon will also be extracted and sold annually.

The 2007 Rio Tinto Review says that currently the mine is operated by 80 per cent Rio Tinto owned QIT Madagascar Minerals and 20 per cent by the GoM. Article 4 of the Framework Agreement clarifies that this division of ownership is only assured during the mine development phase which expires at the end of 2008. In effect it allows the Malagasy Government additional time in which to borrow the funds required for the capital purchase:

> 4.2 The Shareholders' Agreement provides for an initial shareholding by the State equal to 20 per cent of the share capital of QMM SA and a series of mechanisms permitting the State to hold 20 per cent of the share capital without participating in the financing normally required by Shareholders up to the Completion Date.

After the completion date marked by the first shipment expected in December 2008, the Government will need to decide whether it is worthwhile to pay for up to 20 per cent of the capital investment expended by Qit Fer by this date:

> 4.2 cont. After start-up of operations, and in the event that the State has not contributed to the increase in share capital required at such time, the State shall nonetheless benefit from an irrevocable option to purchase shares belonging to QIT at a price and within a period provided in the Shareholders' Agreement, so as to permit OMNIS to maintain a minimum 20 per cent interest.

Under the framework agreement QMM enjoys considerable concessionary breaks on taxes, duties and royalties. Once these are deducted QMM expects the Malagasy Government to earn US$7-US$9 million in the first five years, rising to a maximum US$15-US$26 million per year from local expenditures, royalties, taxes and optional dividends thereafter.

In the SEIA QMM's estimates of the annual income that will be accrued to the Malagasy Government also include dividends from the 20 per cent capital share. However this assumes that the Government will enter into the shareholding and if not, the annual amount of revenue earned by the government would need to be reduced by the dividend amount.

QMM also includes local expenditures in its calculation of income. Although such expenditures may benefit the local economy and Government revenue indirectly through value added tax and import duties, it has a fluctuating value the size and flow of which is hard to assess. So for the purposes of calculating direct government revenue, only direct taxes and royalties of US$7-15 million are included.

Once QMM's figures are adjusted for these considerations direct revenue accruing to the Government will grow to US$7-15 million per year without the share option and US$11-21 million if the share option is exercised. However once the considerable cost of servicing the loan to purchase the share capital is subtracted the revenue is reduced significantly making this the least attractive option (see table 1.).

<u>b. Mineral value</u>

The price of Ilmenite stood at US$75-US$85 per ton in 2006 (Industrial Minerals (London)). At the estimated 750,000 tons per annum estimated for extraction the revenue from the ilmenite is projected to be around US$60m per annum if one assigns a mean commodity value to ilmenite of US$80 per ton (In the SEIA QMM estimate an annual turnover of US$69m). Although lesser quantities (25,000 tons per annum) of zirconium are expected, at US$800 per ton the income from this could amount to an additional US$20 million per year.

The ilmenite is not scheduled to be sold directly to the international market as the framework agreement gives Qit Fer (a Rio Tinto owned titanium dioxide smelting subsidiary in Canada) exclusive rights to buy the ilmenite at market price. If the value added by Qit Fer of the conversion of ilmenite into far more valuable titanium chloride slag (US$413-550 per ton 2006[1]) is included it greatly increases the Rio Tinto profits accrued.

c. Income potential for the Government of Madagascar

The Government has an important choice to make as to whether to exercise its capital share option and if so whether or not to opt for the full 20 per cent available. If it does so the US$117 million loan required to facilitate this purchase would require considerable annual interest and repayment servicing (the scenarios estimate loan repayment over 40 years at 5 per cent interest amounting to US$272.8 million) which as the scenarios show would eat into net revenues.

QMM projects an annual turnover of US$69 million. The 2003 SEIA estimates (Chapter 6, table 6.2) that the mine will contribute US$7-9 million annually to the Madagascar economy during the first five years of operation, though no breakdown is offered about revenue disbursal. This figure will grow from US$15 to US$26 million per year from all sources (local expenditures, taxes, and dividends) over the life of the mine. The breakdown for year six and beyond is:

Local expenditures	US$ 4-5 million/year
Government fiscal profits (i.e. taxes)	US$ 7-15 million/year
Dividends deposited at OMNIS (institute of mines)	US$ 4-6 million/year
Total expected:	US$ 15-26 million/year

Source: WWF, 2001, citing the 2003 SEIA

Assumptions used

Where there is a choice of variables the assumptions used choose the most positive outcome based on the limited information available.

Two scenarios are offered: the first presumes that the GoM decides to exercise its capital share option, the second that no share option is exercised. Each of these reflect the potential income range between best case and worst case.

Two further considerations are applied to both of the scenarios. The first presumes a large step jump in revenue between years 5-6 and that after this time the revenue income remains at a constant maximum throughout the remaining mine life. QMM do give figures for years six and beyond as constants but also describe the more likely reality saying ‘This figure will grow from US$15 to US$26 million … over the life of the mine’ (SEIA, 2003). So the second, more realistic scenario, shows revenues gradually rising upwards and is calculated using a straight line increase.

[1] US Geological Survey, Mineral Commodity Prices, 2007.

Table 1. Best and worst case revenue scenarios for the Government of Madagascar

Total Government mine revenue earnings over 40 year mine life, minus loan servicing. Excluding Government port loan of $35 million.	**With stepped revenue increase after five years (optimistic). US$ million**	**With gradual increase after five years (realistic). US$ million**
Capital share option exercised, best case	507.2	297.2
Capital share option exercised, worst case	157.2	77.2
Capital share option **not** exercised, best case	570	420
Capital share option **not** exercised, worst case	280	280

None of the figures are adjusted for ilmenite/zircon commodity price fluctuations or inflation. Interest and repayments on loans are estimated at 5 per cent and so do not include interest rate fluctuations or any specific lending conditions that may apply.

Loan repayment scenarios have a considerable impact not only on the Government's revenue from the project but also the investment risks undertaken by Rio Tinto. If the Government were to exercise its share option, this buy-in would present a strong financial and political commitment to the project and provide Rio Tinto valuable reassurance of the security of its investment. It would also help the Government to deflect any criticism about the country's mineral resources being stolen.

In purely financial terms however, buying-in to the share option does not make sound business sense, because in all scenarios the revenue accrued after loan servicing is less than the equivalent scenario where the share option has not been taken. In addition it must be remembered that the Government has taken out considerable additional loans associated with the project, such as the $35 million port loan, so to achieve an accurate picture of the revenue accruing to the Government these plus any servicing costs should be subtracted from the figures in *table 1*.

Table 2. Estimates of revenue from the mineral asset to Rio Tinto

Total mine revenue earnings over 40 year mine life minus capital costs.	**US$ million**
Ilmenite at US$80 per ton x 750,000 tons	2,400
Zirconium at US$800 per ton x 25,000 tons	800
Total mineral value	**3,200**
Minus capital costs	585
Total revenue income	**2,615**

Does not include reduction for annual running costs or value added for processing into titanium Chloride slag.

d. Revenue allocations

Repayment scenarios have a considerable impact not only on the Government's revenue from the project but also the return that Rio Tinto can expect from its capital investment. These amounts are subject to fluctuations of different variables such as the price of ilmenite. How the total revenue is divided is represented here as a percentage showing best and worst case scenarios.

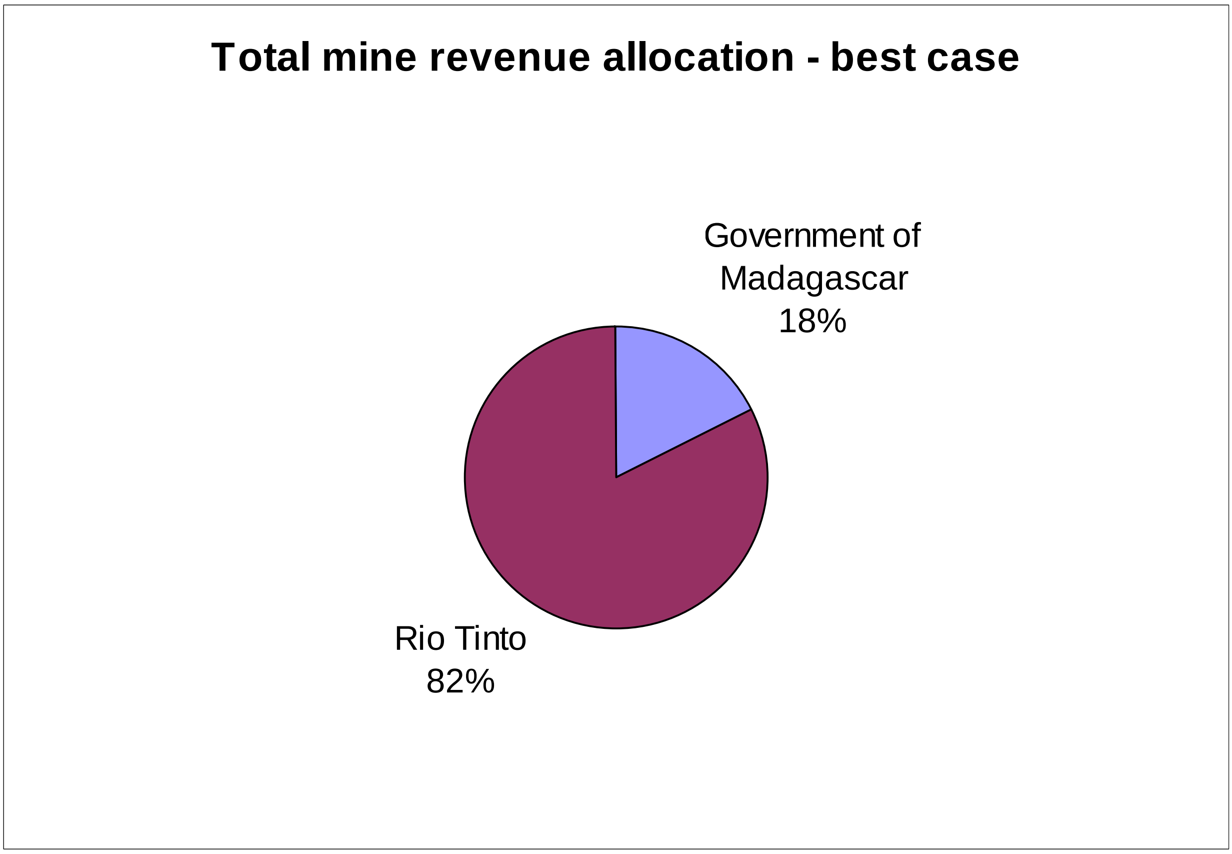


Figure 3.

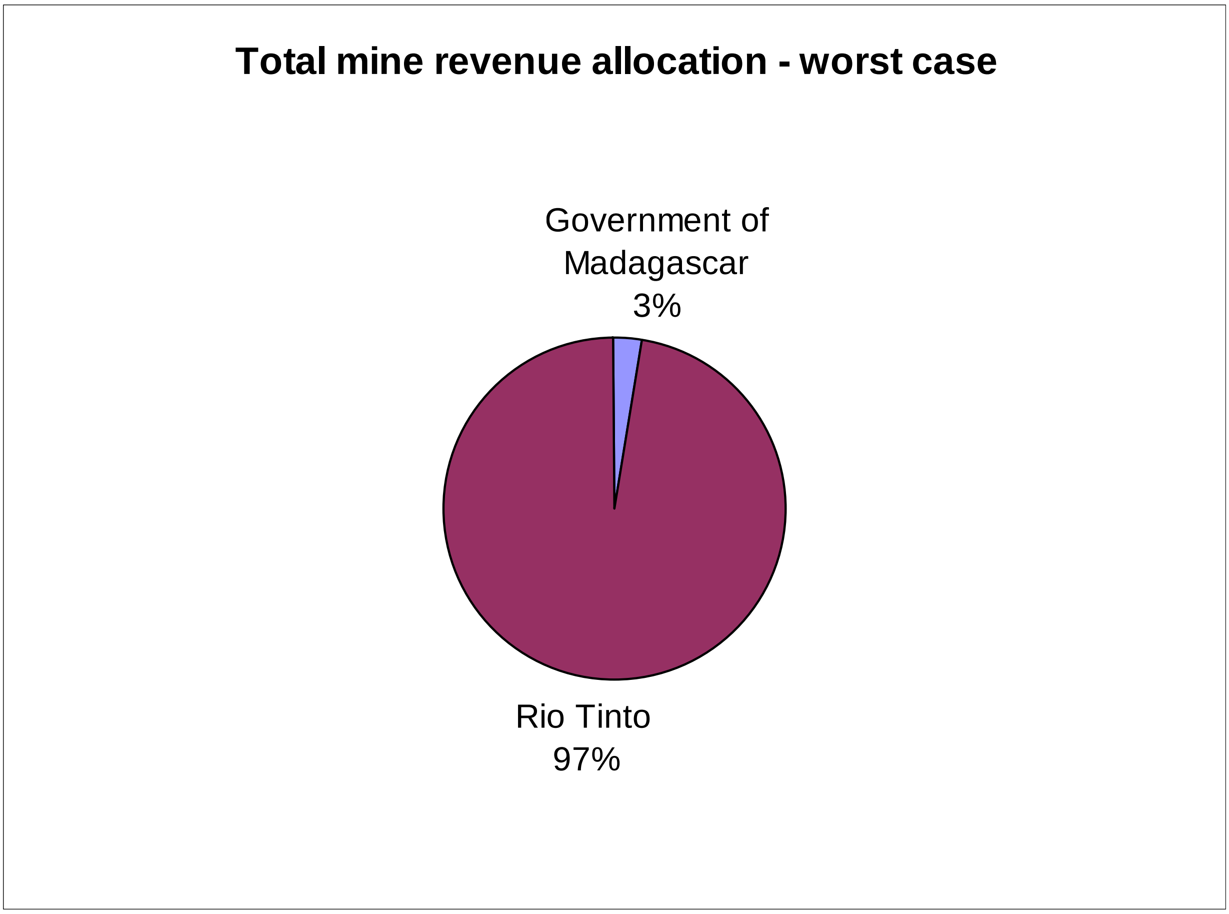


Figure 4.

e. Value of land and mineral deposit

The framework agreement is notable for the lack of any mention of the unmined value of the mineral deposit. There is, however, a provision for minimal land royalties of around US$120,000 per year, which do reflect the higher value of mined land compared with land under reserve (Framework Agreement).

Land royalty payments by QMM to the state:

Article 8.3 State Owned Land

• Roads and electrical lines	0
• Fixed constructions	US$60/HA/year
• Mining	US$20/HA/year
• Land under reserve	US$2/HA/year

Source: Framework Agreement, p20.

In effect the only value the mineral is afforded is that accruing from the process of extraction. Furthermore, the tax holiday or lifting of sales taxes further reduces the potential revenue stream accruing to the government.

f. Risk factors

Mineral prices are generally running at all time highs and although the price of ilmenite has historically remained quite stable, its price is vulnerable to erosion from excess supply as significant other sources are coming online from countries like South Africa, Mozambique and Australia.

Rio Tinto is explicit that its business strategy for the Fort Dauphin deposit depends very much on the continuing buoyancy of Chinese economic demand (Cook, J. 2007). Aside from cyclic downturns in the world economy which could hit Chinese demand, there are a number of other factors that should be considered. Firstly, Chinese investment trends in Africa and other mineral rich regions indicate that it is keen to invest directly in projects that establish primary control of natural resources, rather than continuing to rely on intermediary corporate actors. Continuation of this trend could undermine Rio Tinto's dominant position in the sector.

New technologies may also alter demand patterns. For example, developments in nanotechnology are rapidly gaining pace and there is already a focus on titanium dioxide products such as contained in some sunscreens. One of the novel and economically appealing aspects of nanotechnology is that reduced to small sizes at the atomic level, elements change their properties and characteristics. This creates new opportunities to explore lucrative and previously unattainable properties of which reflectivity (the property of ilmenite) could be one. Developments in nanotechnology are already dubbed to revolutionise manufacturing with profound implications for suppliers of raw materials, especially minerals.

The company becomes vulnerable once the investment is sunk because it will need years to recoup the capital invested, let alone to earn the target return on investment. This makes it vulnerable to contract renegotiation, which might be more likely if there is no government stake and if the current presidency were to change. According to a government source Rio Tinto has gained risk guarantees for its investment from the World Bank MIGA. Furthermore, the framework agreement with the government also includes clauses ensuring project continuity under changes of government.

Although QMM has made strenuous efforts to ensure that its investments in Madagascar are insured against political change or social upheaval it has offered few guarantees that it will see exploitation of the deposit through to completion, especially should adverse economic conditions arise. In such a situation the GoM could be left servicing a sizeable debt with no income from the mine.

The scenarios presented here are inevitably a simplification of a complex economic situation and are only intended to offer some insights into a poorly understood business arrangement. The scenarios only include debt servicing for loans directly related to the 20 per cent capital share option and the port. However, in reality there are many other loans that the Government has entered into with the World Bank which relate to the mining project in one way or another. For example, substantial sums are being invested in legal and institutional capacity-building so that government offices are equipped to deal with the extensive administrative changes that the project involves. How well these loans are managed, implemented and monitored presents a further risk.

In recent years economists, international financial institutions and international donors have paid increasing attention to revenue leakage through corruption which continues to be a major problem in developing countries. Experts in this field have identified a particular phenomenon called 'The resource curse.' Professor Richard Auty who pioneered our understanding of the effect describes the resource curse:

> *'Business formation is impeded in distorted developing economies not only by weak financial systems and lack of skills but also by deficient institutions that undermine the rule of law and facilitate rent-seeking at all levels of government. Rent seeking allows underpaid civil servants to abuse the authority of the state by either directly siphoning away public revenue or else skimming it from businesses in ways that depress incentives and deter long-term investment in competitive activity. Under these conditions, trading and real estate, often reliant upon favors from well-connected government and party officials, hold fewer risks than investment in agriculture and manufacturing that face foreign competition. Small and medium enterprises (SMEs) seek to escape rent seeking imposts by operating in the grey economy, which is estimated in some former Soviet countries to range from one-quarter to two-thirds of official GDP' (Auty, R. 2007).*

To assess the likelihood of rent seeking escalating in Madagascar it is necessary to assess the effectiveness of the country's governance. The World Bank provides a comparative indicator with its 'governance indices' which place countries on a numerical scale. Madagascar is placed in the middle, above many other African countries. A further indicator is that the Government has recently committed to the Extractive Industries Transparency Initiative, designed to track revenue streams to prevent them falling into the wrong hands. These promising developments need to be considered together with the less transparent and accountable experiences encountered in putting together this report, such as key documents being unavailable and frequent confusion about what could be released for public scrutiny. The effective flow and communication of information are important aspects of open and effective governance and impediments encountered to such processes during the research are presented throughout.

One of the greatest risks to the project, and the main subject of this report, is social acceptance. In cases such Bouganville Island, where this has been lacking to such a degree that opposition erupts into civil strife, mining operations can be disrupted or halted entirely, affecting revenue streams. So it is in the interests of the government and company to gain social acceptance by seeking ways to address local interests and concerns. Often this is achieved through strengthening local institutions which can then coordinate complaints, establish realistic expectations and negotiate conflicting interests. A representative body capable of articulating and negotiating local interests can ease the coordination of fragmented claims and interests.

Questions for stakeholders:

- What existing rent revenue studies have informed Government decisions about the project and have these been available to stakeholders more widely?
- How do hidden variables, such as provisions in the shareholder's agreement, alter the revenue scenarios presented here?
- What steps could be taken to widen debate about the Government's choice of whether to take-up its 20 per cent capital share option in the project? Has the Government sought or secured any loans for this so far?
- What is the unmined value of the mineral deposit?
- Have any risk assessments been carried out, in particular on the likelihood of Madagascar falling foul of 'the resource curse'?
- Does the Government have a contingency plan for loan servicing and repayment if the company decides to stop mining early?

Chapter 3

Impact on the local economy

This chapter presents an assessment of the effects of mining operations on the local economy as told by many local stakeholders, especially from the commercial community.

a. Inflation

> *'mineral projects dwarf and strongly influence the adjacent local economy because of the size of the investments they make: a typical ore mine invests hundreds of millions of dollars, and hydrocarbon extraction invests several billions. If local governments are politically weak and the central government is negligent, it is all too easy for local communities to bear substantial environmental, economic, and social costs for which they are inadequately remunerated. For example, mine construction assembles a large and relatively well-paid workforce that creates transient local business opportunities; but this workforce also bids up the price of local labor and housing and requires expanded infrastructure, while creating social problems associated with an all-male migrant workforce, as well as major changes to the environment' (Auty, R. 2007).*

The February 2007, Poverty Reduction Strategy Paper (PRSP) for Madagascar describes the national inflationary situation: 'Macroeconomic performance has strengthened but is still uneven, characterized by double-digit inflation due to high oil prices, sharp rises in power and water tariffs and the depreciation of the Ariary in 2005. Import demand has kept downward pressure on the Ariary that has been slowly depreciating' (International Monetary Fund, 2007).

The most apparent impact on the local economy since mining operations commenced has been rapid inflation to the cost of living. Everyone interviewed recognised this problem and the consequences were being felt across the social spectrum.

One doctor interviewed explained that despite his best efforts to keep down charges by subsidising from his own pocket he had noticed a drop off in his patient numbers. He explained that the cost of medicines had risen so that in some cases people could no longer afford health treatment.

An NGO worker interviewed was currently in the process of recruiting staff for a new office in Tulear. He said that one candidate was applying for the job because the cost of living had become such a burden that he had decided to leave Fort Dauphin despite having lived there all his life. A counter effect was described by one interviewee who said that it was becoming increasingly difficult to recruit people from outside the region as most were reluctant to relocate because of the higher prices. Where candidates were prepared to consider the move most would contribute to inflationary pressures by demanding higher salaries.

The cost of bread and cooking oil in Fort Dauphin at the time of research was twice the price of that in the capital, Antananarivo. Procurement of groceries for the new mine workers' village compound is the responsibility of French company Sodexho contracted by QMM. Many people cited an example where Sodexho had flagged down a grocery truck coming from Antananarivo before it got into town and had bought the entire load. One said however that QMM had instructed supply contractor Sodexho 'not to drain the local market'.

Land, property prices and rents have increased dramatically. One NGO was approached at the time of the research by its office landlord who had been offered four times the current rental price for its office by QMM. The NGO was unable to match this price rise and staff were concerned about their future presence in the town. Several interviewees cited manifold rent increases: ‘Rents have risen five to ten times what they were,’ said one.

An official at the regional administration said that there has been no discussion of the effects of price rises in the government even though he considered it the government’s responsibility and not that of QMM.

World Bank staff interviewed about the inflation played down the problem. One questioned whether the presence of the mine was the cause of the inflation. The other said that periodic inflation due to disruptions in supply, because of bad roads for example, was a regular state of affairs. This later observation is borne out by other interviewees but rather than improve the situation most people said that the presence of the mining company had exacerbated the problem.

Several people in the NGO community said that although they may be able to weather the increases many local people would not. One said that: ‘in the past week several neighbours have come to me and said that they can no longer make ends meet.’

QMM say they are monitoring the situation and are in the process of putting together a package of measures intended to alleviate the problem. They say they intend to start a radio station over which prices in town can be relayed to rural regions in the hope that farmers will be motivated to supply the higher town prices. It is also scheduled to improve Fort Dauphin’s market facilities.

Some considered that the inflation is associated with the social-economic boom caused by the construction phase and is therefore a temporary problem. Others however said that it was creating deep social divisions which could take a long time to heal. One said that the biggest issue now was that: ‘society is dividing into two tiers: a fast developing educated class able to participate in the developments and the rest of the population who are not able to participate.’

b. Local business opinions

Emphasising the way inflation increased costs and reduced profit margins, all local business people were concerned about its impact on their businesses. When asked why they thought this inflation was happening people had different opinions. Most thought that it was due to the influx of wealthy foreign workers whose buying power was forcing up prices. Other reasons given were the general population increase of Fort Dauphin due to the project’s peripheral service trade and the influx of job-seekers. Some linked this general increase in demand to a more or less static supply of goods and services.

Bad roads have long been a cause for erratic delivery of supplies due to trucks getting held up on impassable sections or having to wait long periods to fix breakdowns. This continues to contribute to price fluctuations and was mentioned by people.

The existing port was mentioned because shipping frequency was said to have fallen in recent times, partly due to high landing costs. Some larger local businesses have turned to air freight for long distance imports of high value goods despite the high freight costs which have to be passed on to the consumer. The market for high end goods (such as toiletries and dairy products) is mostly with the wealthy.

Availability of fresh produce was understood by some traders to be affected by the lack of rain which some said had been in short supply for several years. ‘For people now to buy tomatoes it is difficult – last week in the market they were more expensive than meat,’ one said. The critical humanitarian situation caused by the lack of rainfall for crops has led to distribution by aid agencies of staples, especially rice, which may itself have an effect on market pricing.

One representative of a prominent NGO explained that: ‘The price of food is increasing everyday and this is increasing wealth disparity.’ His NGO is working with farmers outside town to alert them to the opportunities for supplying produce to the highly priced Fort Dauphin market place. ‘We are working closely with Sodexho. We are doing technical training in the field with farmers. If we don’t act now then the market will go elsewhere.’ He said that Sodexho would prefer to find food in the region because it would be cheaper for them. At the moment they require 100kg of vegetables per day to supply the mine construction staff.

He explained that their initial target before the mine was to promote fruit and vegetables amongst the population to enhance the nutritional intake of the poor. His worry now is that farm production is required immediately to meet increased demand and alleviate price rises. This urgent situation is diverting food resources away from the poor who are most in need of more nutritional intake: ‘For poor people it will be difficult to adapt.’ he said.

c. Employment

> *‘The mine operating stage requires a smaller, albeit more stable, workforce, and while companies give preference to locals, the skills required may draw workers from other regions whose higher incomes may be met with resentment among local non-mine workers. At the end of a project, mine closure depresses the local economy; in a final blow to local communities, environmental clean-up operations seldom restore land to its pre-mine condition’ (Auty, R. 2007).*

According to an official at the regional administration there are 814 workers employed at the mine and associated projects including 48 foreigners. The administration is only aware of actual workers and has no way of monitoring job-seekers arriving from other areas.

QMM and its contractors have hired substantial numbers of Malagasy workers, though another complaint made was that many of them are from outside the region. Among local people not employed by the company there was a sense of disappointment, particularly by young men, of the lack of employment opportunities available in the mine or associated activities. Many had been looking forward to gaining work after QMM committed itself to hiring up to 600 workers.
QMM say that many positions require a certain level of skills such as computer literacy and English language. This combination of skills is rare amongst local people due to limitations in the education system.

Some people were critical of the lack of training provided by QMM at the local level and claimed that it did not live up to the promises originally made. Several said that they thought the reason for this was due to a reluctance by QMM to commit any investment other than the essential, before acquiring project approval in 2005. For nearly twenty years preceding this QMM maintained a presence in the area but nothing was done to set up training support to enable local people to be employed in the mine in the future, people said.

Young male Permanently Affected People (PAPs) felt particularly betrayed. They felt that since QMM had deprived them of their livelihoods by requisitioning their farmland they bore a duty to provide them with employment. They said that with no land they had little to do and that this was placing a great strain on family life. Many expressed that their respect and self-esteem had been damaged because they were unable to provide for their families needs such as regular food and education for their children. In response to this problem QMM has promised to prioritise recruitment from the PAPs villages should employment opportunities arise.

Grievances amongst workers for project contractors Sodexho and Daiho were described by one journalist. The workers claimed that their contracts were not being respected because they were receiving smaller salaries than they had been assured. She said that because they are poor they were afraid to speak out for fear of losing their jobs.

Some people considered that the project would have attracted a rush of speculative job seeking, but information about this was hard to acertain, mainly because of lack of monitoring, of what is in any case an invisible and mobile section of society. Some people in poorer neighbourhoods said that newcomers had moved in exacerbating the overcrowding. Another said that in the beginning people arrived from Androy, but on finding that there was no work available, most returned taking with them the message to their locality that opportunities were limited.

The reverse problem of skills shortages was more apparent. Two connected causes were largely responsible for this. Firstly, QMM has recruited a large proportion of the local skilled workforce, leaving few skilled workers available outside their employment. Although QMM salaries are attractive enough for Malagasies to move to Fort Dauphin, other sectors have trouble matching their rates and so have had problems attracting staff because of the rising living costs.

Several people said that better foresight through establishing preparatory skills training could have led to more local employment in the project. However, others warned that the current construction phase was the high point of employment and that additional social problems could occur when construction workers are laid off and the workforce reduces to a core operating crew.

d. Business relations

Business entrepreneurs interviewed were generally very open to the potential opportunities that local changes could bring to their businesses and were happy to explore and even invest in business avenues that showed promise. However, there was an overall sentiment expressed that people felt bypassed by the new investments in town and, where they had explored new business arrangements, many felt they had not borne fruit or lived up to expectations.

Several had made investments based on raised expectation and when the promise of success failed to materialise had failed to recoup their investment and some had fallen into debt. Several said that at local enterprise meetings QMM had declared its intention to increase demand but that in reality such declarations were overstated and led to local businesses creating oversupplies due to the shortfall in demand.

One example was the requirement for hire cars. According to one businessman QMM originally said it would require 200 vehicles. Businesses made costly investments and there were even some new investors from outside this business sector who tried their luck by buying into it. The shortfall in take-up claimed by those interviewed led to oversupply which had the effect of maintaining vehicle rental prices at a low level.

One businessman said that the price to buy vehicles had increased but that rental prices had not kept pace with this. Accordingly, he had ceased investments in new vehicles. He claimed that QMM set their rental price and that all suppliers kept to this for fear of losing their business should they ask for price rises: ‘QMM sets the price and we don’t step out of line with that for fear of losing business’ he said. This example provides one of several exceptions to a more general experience of rising inflation.

Business representatives said that if QMM had wanted to they could have done much more to engage the local community and call upon their services. One said that since an enterprise meeting with QMM 8-9 months ago there had been no contact to explore potential opportunities. He was dismayed that QMM continued to use agents in the capital instead of local services such as his which he claimed were 'up to the job.'

Some business people are undoubtedly doing well out of the situation, especially those who have secured contracts with QMM or who own property. However, some of this group also expressed concerns about the uncertainties that lay ahead. According to one prominent businessman it was all about economies of scale. Although he was doing well at the moment he had worries about the opening of the new port. He said that bigger businesses would be able to import bulk containers which could have the effect of undercutting smaller businesses such as his own which rely on costly air or road freight. He had not seriously considered using the port himself, partly because he had no information about the possibilities.

Currently there are 62 houses in the QMM village compound which is scheduled to expand not only to provide more worker accommodation but also more services for them. One businessman worried that once this happens his passing trade from QMM staff would tail off and that the onsite service shops would receive supplies directly from the new port, thus circumventing local businesses.

One of the biggest challenges facing business people overall was the increased difficulty in making sound investment decisions due to the rapidly changing nature of the local economy. Not only do they have to consider the differences between the construction and operating phases of the mine, but also the changes that the port and associated development projects will bring about. Many said that if QMM and other informed actors communicated their knowledge and information more it could help them to make more informed and appropriate business choices.

e. Tourism

Availability of hotel rooms in Fort Dauphin was extremely scarce because most are taken by employees of the mine and associated construction workers. For example, QMM has completely requisitioned the Miramar hotel for its senior staff. Advance block booking of hotel rooms is common because it does not incur a fee so that even if rooms are not actually used they only become available at a late stage.

Tourist operators and tourist service businesses in town are worried about a recent fall-off in tourist numbers. One said that he had had a call from a tour operator in Reunion recently wanting to send a group to Fort Dauphin. He later decided against this because of the scarcity of rooms.

A hotel owner said that tourists are very sensitive about where they go. He said that once guide books started circulating information about the mine, tourists would go elsewhere because he said the mine would not appeal to tourists seeking a relaxing uninterrupted holiday.

World Bank and QMM representatives considered the issue a short term one which their policies are intended to improve. One said that in the coming few months an additional 100 room occupancy was scheduled due to a new hotel opening and an extension to an existing hotel. In the longer term, World Bank strategy is to create the conditions for inward investment by foreign hotel operators in areas earmarked for tourist development; for example by simplifying and streamlining land titling procedures. A World Bank representative said: 'There are lots of gaps with the QMM project such as social housing – we need to get them out of the shacks and ghettos if we are going to make it a tourist destination.'

QMM also point out that the expansion of their village compound will enable more staff to move out of hotels and into the new accommodation, although this is not scheduled to apply to contract workers such as Daiho. This company is due to bring substantial numbers of Filipino workers, due to move into a housing compound near the airport.

Many of those interviewed were puzzled that mining and tourism were being packaged together as strategic development priorities. They considered the two sectors as mutually incompatible and cited mining activities, like noisy truck transport, as deterrents to tourism. World Bank and mining representatives said that tourism destinations in the region were far enough away not to be disturbed by the mining and that the mine itself may provide a tourist attraction.

Questions for stakeholders:

- What are the forecasts for inflation in the Fort Dauphin area? How can the debate be widened about the effects of inflation, such as the social consequences?
- Is inflation reducing the food security of the poor and marginalised in the region?
- Is inflation reducing access to land and housing by local people?
- How could QMM help increase employment both inside and outside the mine?
- How can local businesses fill the skills shortages they are experiencing?
- How could QMM best develop regular and productive communication with the local business community?

Chapter 4

Property ownership issues

Just 10 per cent of the Malagasy population hold 'official' title to their land and the Madagascar Action Plan has set the ambitious target of increasing this to 75 per cent by 2012. Land rights in Madagascar are notoriously complex and open to competing claims. All land in Madagascar is officially owned by the state. Although this may be the case on paper, the reality is a complicated tangle of claims, sales and purchases over which the state has little say unless it decides to take a proactive interest, as in the case of the QMM mine. The legal status of all land is based on French colonial law which until recently has changed little. Apart from Government public land, three main types of rights exist and are afforded different levels of legal protection. Non-state ownership is divided into the following categories:

1. Official Government documented land title.
2. Individual share of a collective title supported by Government documentation but which does not stipulate an individual title designation (known as 'cadastre').
3. Title of ancestral inheritance or long-term cultivation supported by witnesses but not a Government title deed.

Of the non-state ownership categories, the first is said by Government lawyers to override the other two in cases where disputes arise because it is based on a documented government process which holds greater authority with officials. Furthermore, unlike the other forms of rights the documentation should make it easier to validate rightful ownership.

The reality is that the long-standing acute lack of capacity in the Government, especially in relevant departments, continues to cripple the official registration process. Not only does it take a long time but even where titles have been gained there is no certainty about their longevity because the records system is in disarray and titles can be lost or the paper can simply decompose.

Stories abound of frustrations with the process and the temptation to help one's case along by offering financial incentives outside the official process is said to be commonplace.

Where the process is hampered at the official level, it also presents difficulties at the common level especially as illiteracy is so widespread. For people to make an application they need knowledge of the importance of official title, knowledge about the process of applying and access to the offices concerned. Most often communities do not have such access to knowledge and often do not understand that the customary title that they hold does not hold the legal weight of official title.

One Government legal expert said that it was not uncommon for official titles acquired by dubious means to win in a case contested in the courts and to override customary title which may be based on a long-held common understanding of customary ownership going back for generations.

The discrepancy between the legal weight afforded written recorded ownership versus customary verbal ownership is at the root of a disequilibrium of rights which has deep reaching consequences for those disadvantaged sectors of the population who rely on customary rights.

The system of written records is well established in many parts of the world for good reason. Verbal ownership rights are open to multiple claims and disputes which are hard to unravel and resolve. Whilst cohesive communities often have elaborate checks and balances to govern land ownership, the collective nature of communities may also reduce the incentive to enforce individual ownership, thus allowing grey areas and overlapping claims to go unchecked for long periods until the status quo is disrupted and the problems are revealed.

Nevertheless, communities do have elaborate systems of boundary markers and land ownership indicators. For example, living sisal fences show an ownership boundary and cultivated fruit trees show longevity of ownership. Natural and man-made features in the landscape are often understood in elaborate detail by community members and can be read and interpreted like a detailed map.

It is a map that is constantly being amended and upgraded over time. Changes occur, not only in land sales and purchases but also in the living landscape too. Trees die, are cut or are planted intentionally or naturally seed or regenerate and grow. Land is cultivated, and land falls fallow. Such agricultural dynamics entwine with ownership patterns and these are transmitted through social structures to update the perceived community wisdom in an ongoing process.

In the literature it has been argued that such elaborate land tenure systems of customary rights quickly break down once a community is displaced or eroded or where a new one forms of disparate members such as in an urban setting. It has equally been argued that the urban poor are good at maintaining existing traditions and can apply them to new situations (Nygren, 1999).

As part of its ‘Integrated Growth Poles Project,’ the World Bank has committed funds to building the capacity of government departments to process land applications and work is already underway. For example, in recent months new computerised facilities have been put in place. It also intends to pursue the process of assessing and streamlining the antiquated laws of land ownership. However, all stakeholders are keenly aware that any changes to the law will be highly political because whichever system is chosen will see winners and losers. All institutional stakeholders considered that the modernisation and streamlining of processes and records was the unquestioned direction in which the system should develop, though one mentioned that due to the sensitivities involved any modernisation may best be ‘hybrid’ of different systems. Though some favoured building on the existing titling system, many Malagasy officials recognised that they and their families could stand to lose out in such a situation because of the widespread nature of customary rights which is far reaching and affects most sectors of society.

The motivating objective of the World Bank is clearly expressed to attract Foreign Direct Investment (FDI) to the Fort Dauphin region. Recent amendments to land ownership laws allow foreigners to purchase land for the first time. The World Bank says that simple land titling procedures providing solid legal guarantees are necessary in order to attract foreign investment. Already some owners of prized coastal land have been told that they may have to move due to lack of title, in order to make way for foreign financed development. One World Bank official said: ‘There is a big secondary market of selling land. That’s not legal, it has absolutely no legal foundation. We are waiting for advice from our lawyers about how to deal with this. It is a question of compensation.’

QMM has taken advantage of this situation by buying up or leasing prime locations and desirable properties around town for its workers. However, QMM is not the only operator in what many described as a grab for land. Anyone in a position to undertake such an investment is trying to get in on the act to profit from rapidly rising prices. Those local people unable to get a foot on the first rung of this ladder expressed dismay.

Local people described how rents had increased dramatically over the past year and that the purchase of land at corresponding prices was now completely out of their reach in town. Some said that this exacerbated the existing tendency for people in effect to squat on areas, because they were in no position to rent, let alone to buy and apply for legal title. This situation has, according to local market traders, been compounded by an influx of newcomers seeking work.

One NGO representative described a recent conversation with the landlord of their office. The landlord said that he had been approached by QMM and offered four times the current rent. He was therefore asking the tenants if they could match this price. Several people said that similar situations had placed either themselves or friends in an insecure situation of feeling powerless and afraid.

Questions for stakeholders:

- How can communication be widened to inform those holding customary land rights about their property ownership situation and options?
- How can stakeholders support those holding customary land rights to acquire the skills, knowledge and resources required to attain official land titles quickly?
- What impact, if any, will Foreign Direct Investment have on those who do not hold official land titles?
- How could property ownership rules be amended to make them more accountable and equitable?

Chapter 5

Resettlement and compensation

Requisition of land and displacement of people, agricultural production and livelihoods are some of the most difficult issues facing any development and the Fort Dauphin project is no exception.

a. Compensation commitments and compliance procedures

The World Bank is beholden to its operational policy on displacement of people, and as a condition of lending, requires that both the Malagasy Government and QMM comply with the conditions laid out.

World Bank representatives are involved in the compensation process. In order to ensure compliance with the Bank's *Operational Policy BP4.1.2 on Involuntary Resettlement (revised 2004)*, the Bank needs to satisfy itself that the details of the policy have been met (see relevant articles below). Most problematic of these is the replacement of land with cash settlements and the troubled implementation of the 'accompaniment process' to which PAPs have not been receptive.

In order to reassure observers that it is meeting its commitments on the project the Bank may find it useful to make available its assessment as to how: 'The lack of adequate land must be demonstrated and documented to the satisfaction of the Bank.' According to the Bank's policy this condition must be met to justify the use of compensation payments for land instead of land for land.

World Bank operational policy BP4.1.2 on involuntary resettlement (revised 2004)

Extract of important articles:

11. Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based. These strategies may include resettlement on public land (see footnote 1 above), or on private land acquired or purchased for resettlement. Whenever replacement land is offered, resettlers are provided with land for which a combination of productive potential, locational advantages, and other factors is at least equivalent to the advantages of the land taken. If land is not the preferred option of the displaced persons, the provision of land would adversely affect the sustainability of a park or protected area, or sufficient land is not available at a reasonable price, non-land-based options built around opportunities for employment or self-employment should be provided in addition to cash compensation for land and other assets lost. The lack of adequate land must be demonstrated and documented to the satisfaction of the Bank.

12. Payment of cash compensation for lost assets may be appropriate where (a) livelihoods are land-based but the land taken for the project is a small fraction of the affected asset and the residual is economically viable; (b) active markets for land, housing, and labor exist, displaced persons use such markets, and there is sufficient supply of land and housing; or (c) livelihoods are not land-based. Cash compensation levels should be sufficient to replace the lost land and other assets at full replacement cost in local markets.

b. Property assessment

According to different officials and stakeholders interviewed, the process by which people are resettled and assets are assessed and compensated is based on rules laid out in the Declaration of Public Utility (DUP – Déclaration d'Utilité Publique), a Government decree of 1962. Under the DUP process a commission has been set up led by the Chief of the region (local government) and composed of a range of officials with competence in all issues relevant to the process. The DUP also contains a dispute resolution panel. Each case dossier for compensation needs to go through the DUP which will administer the following steps before giving a decision based on the law of expropriation and the compulsory purchase order. The steps for consideration are:

1. assessment of land areas
2. state of land and what is on it of value
3. how much compensation should be given to the people involved
4. decision on ownership status
5. decision on whether it is fallow or wild land

The DUP assigns a team of officials from a consortium of nine ministries and draws on expertise about local prices. In 1995, the Commission Administrative of Evaluation (CAE) adopted this valuation list to price the land and assets on it such as trees and crops. They completed a list of people affected who could be eligible for compensation in November 1995. Its report, once validated and accepted by parties, was used as the basis of payment for the first assessments. According to the law, landowners have the right to contest the assessment for up to 15 days after the assessment has taken place and either place a claim with the Commission or the court.

c. Blast buffer zone

Currently the most contested area is the land surrounding the port and quarry sites of Ehoala to the west of town. Ilafitsinanana commune comprises a number of hamlets in close proximity to the quarry area. Some have not had to move being just outside the exclusion zone and others have moved from the quarry area into new houses constructed by QMM. The road acts as a demarcation perimeter boundary. People's houses have been moved to the South side of the road as the North side has been made into an exclusion zone to give a safety buffer from the frequent quarry blasting. Opinions differed about what distance the buffer zone is supposed to extend, from 300-400 metres. Many of the gardens of the former villages and fruit trees can still be seen in this zone though the houses have all been dismantled.

Relocating people has created numerous issues of contention such as dissatisfaction by PAPs with the terms of compensation, housing, water sources, employment and safety. Most hard felt of all by PAPs has been the failure to replace requisitioned land with land of equal agricultural value.

d. Replacement land - availability and delays

QMM says that it purchased 16 acres of land close by and gave this as compensation. However, tests showed that the land was of poor quality and lacked the level of fertility necessary to grow staple crops like maize and sweet potato. QMM agreed to find alternative land and requested the local Government to come up with some alternative options. But, with land in the Fort Dauphin area in high demand and the land department lacking capacity, alternatives were slow to arrive.

Several PAPs said that the level of compensation for their land was insufficient to buy replacement land of the same quality in proximity to their homes. This problem appears to be compounded by the absence of available land in the area placing upward pressure on prices. Several PAPs commented that the land available locally was in private hands and the owners were unwilling to sell because the value had increased due to the project and land scarcity.

Alternative land in the proximity of the PAPs has not been forthcoming, which has not only led to frustrations in many quarters but has also prolonged the period where PAPs have been without land for livelihood and employment. This has led many PAPs to feel disempowered, bitter, with an impression that QMM does not stick to its promises. In the absence of alternative land being offered, all but one of the PAPs began to explore the possibility of receiving cash compensation instead. Both QMM and the World Bank considered this a less satisfactory option and so held out for the land option.

e. Road blockades

In late 2006 the situation came to a head when PAPs from the coastal community of Ambinanibe decided as an act of last resort to attract attention to their plight and apply political leverage by blockading the access road to the port construction. This had the effect of halting construction being undertaken by QMM road contractor Colas.

Those involved said the blockades were discussed beforehand by the community in-depth and prior warning of their intention was given to all relevant authorities in the form of a letter. The main grievances of the local people were that the amount of compensation of 400Ariary (about US 20 cents) per square metre was too low and furthermore, that it had not been paid or only in part.

The incident did result in resolution meetings as parties tried to settle the dispute. The main concession by QMM was an agreement to pay compensation in one single payment sum. The local people say they remain dissatisfied but fear the escalation in police patrols and feel powerless to get a better settlement.

In the QMM monthly newsletter, November 2006, QMM management described its position towards the blockade events:

> *'Generally the reasons for such actions do not involve QMM directly but concern administrative delays beyond our control.'*
>
> *'Irresponsible and illegal blockades and interruptions of our operations cannot be a way of resolving disputes. Such incidents not only damage QMM but in the long run they will damage the communities themselves.'* Gary O'Brien - QMM

f. Stakeholder explanations of grievances

Stakeholders interviewed offered a variety of explanations for the blockade situation arising according to their different perspectives. Some considered QMM at fault for not anticipating such problems in advance and planning accordingly and one said that QMM had consistently under-estimated the scale of the problem. Others considered that local government departments were at fault for dragging their heels in their search for alternative land. Others considered the burden placed on local government to undertake the hunt for alternative land as understandably time consuming for under-resourced departments already struggling with the additional workload created by the project. One said that strict auditing rules insisted upon by the World Bank lenders had made the payments system unwieldy by requiring multiple signatories and was a cause of the delay in compensation payments. Others said that pivotal government officers and committees were not carrying out their tasks and that their responsibilities were falling on others such as NGOs to cover for them. Where this proved impossible because official government authorisation was required the task would be placed on hold. Another interviewee outside government noted that at times it appeared that other priorities such as the general election had taken over from administering compensation payments.

The interpretation of the admittedly complex compensation process varied considerably between different stakeholders, many of whom were directly involved in agreeing or administering compensation to one degree or another. Not only was the process hazy and conflicting but on important points of detail experts gave different interpretations. For example, the price offered for one square metre of land varied considerably (despite taking into account the different land categories). There were also differences of opinion as to whether the compensation payment was inflation adjusted for the time between the assessment being carried out and the payment being made, with the weight of opinion suggesting that it was. There was also disagreement about which body was responsible for setting compensation rates, and although most respondents gave a clear self-assured answer there were important differences.

The reasons for this situation are various but boil down to a lack of communication between the different parties. This is compounded by the different approaches to governance taken by different parties with people from different backgrounds and sometimes from different cultures.

g. Contrasting legal interpretations

One local official described a strict interpretation of the written law and then either denied examples or expressed discomfort with situations which had strayed outside this reading of the official process. This contrasted with a more pragmatic and hands-on approach by QMM and some associates who took a more goal orientated approach to the situation: i.e of resolving the compensation situation quickly and to the satisfaction of those involved. They considered negotiation to be the solution to dispute resolution and that this process inevitably required a degree of flexibility even if this meant straying from old laws which did not appear applicable to the situation or which were proving a hindrance to the negotiating process. For example, one QMM representative said: ‘The DUP process is a relatively clear one but we can’t always play by the rules. In the DUP process the Government is doling out the money and can do so within five years of expropriation, but you can see what a nightmare that would be for a company like us that is dealing with those particular terms.’

The approach tends to be that where laws are not working, QMM and the World Bank advise the Government on the problems and what is required to facilitate smooth investment and operations by external companies. Recent changes to land rights and the mining code have followed this process, making Madagascar more attractive to foreign investment. While the President supports this style of free-market deregulation and restructuring, there are worries in government circles and beyond that Madagascar may lose out in this process. One World Bank representative said: ‘Not everyone thinks the new mining law is good for Madagascar,’ and there are attempts inside government to revise it again to ensure that Madagascar gets a better deal. He went on to say that the World Bank considers the new laws favourable as they stand because they encourage foreign direct investment.

This situation highlights the way in which laws can be used as a political tool to underpin the actions and operations of development actors. Indeed, upgrading laws is a necessity if they are to reflect and support current realities. Otherwise, actions begin to diverge from the law, resulting in greater potential for lack of legal compliance. Where this is taken to extreme levels, the legal system itself begins to become compromised by corruption as those undertaking divergent activities seek unorthodox routes of legal legitimisation.

h. Compensation of trees

Many grievances concerning compensation boiled down to local people feeling short-changed because the assessment had failed to recognise the same values applied to the cultivated land by local people according to their context and local and traditional knowledge. Sometimes there was an issue of the number of trees compensated for. For example, only trees of a productive fruiting age received payments for productivity, with only a single payment given for young trees.

Other situations indicate that the assessments were based on plants and trees that had been intentionally cultivated for productive purposes and excluded species considered non-domesticated or self-seeding. For example, the rosy periwinkle (*Catharanthus roseus*) has an international commodity value because it contains compounds scientifically recognised as providing health benefits, including treatments for diabetes and leukaemia sufferers. This prolific endemic pioneer plant is widely dispersed in Madagascar and is indeed collected by local people and sold in markets for export, but because it is considered 'wild' and self-propagating it was not considered eligible for compensation.

Some of the PAPs gave another example of a herbal tea that they prepare to treat babies suffering from diarrhoea. This comprises a blend of leaves from the 'Masokoaky' plant (local name) and from the 'Nonoky' tree (local name). Such trees are widely grown in the villages and as well as herbal treatment provide shade, fuel-wood and eventually timber. One villager said: 'I left three big Nonoky trees behind in my old field. I received no compensation for them because they were considered as nothing by the assessors.'

Compensation for productive trees is to be paid until the end of 2009 based on a fixed rate per tree. If the tree has reached fruiting maturity additional payments are made to compensate loss of production. Other factors such as age and size are not considered by the assessors.

Different theories exist as to why 2009 was chosen as the end date for loss of production payments. One opinion put forward was that this is the date by which construction will have finished and so then PAPs will be able to return to their land and resume harvesting from their trees. This scenario is by no means certain and indications from QMM make it look unlikely. QMM consider the quarry as a valuable asset with a productive life stretching far beyond the construction phase and which could fulfil widespread and growing demand for road aggregate and other building needs (set to increase if the PIC development project is realised). They envisage handing it over to another company to manage once it has filled its immediate mine construction needs.

Another explanation put forward was that 2009 gave a few years buffer period for new crops or trees to be planted on replacement land and for them to reach their first harvest. Given the current situation it appears that this rationale has lost most of its relevance because the process is going more slowly than originally envisaged and many PAPs say they will be unable to acquire replacement land.

At present the 2009 rule appears to PAPs as premature because it does not recognise the productive lifecycle of the trees involved. A prime mango tree can take up to thirty years to reach a fully productive size and can maintain productivity for generations. Size and age however are not recognised. Providing clarity to PAPs on the rationale for the 2009 end date for compensation payments might help to resolve some outstanding grievances.

One hamlet visited had moved no more than a few hundred metres and although the houses had been dismantled the home gardens and trees remained. The villagers said that they were not allowed to return to harvest their trees because they were out of bounds and in any case were now owned by

QMM. It is unclear whether consideration has been given to the fate of the fruit bearing trees on this land. In other contexts (e.g Jozani forest reserve, Zanzibar, Tanzania) where people have been moved from their land, arrangements have been negotiated to allow former land occupants access at pre-defined times to harvest fruit and other products.

i. Compensation land categories

Compensation rates for land are paid by the square metre and vary considerably (see Appendix 3). A key factor is whether the land is titled or not. Titled land commands considerably more compensation as does cultivated land. Land assessed as fallow receives very little and this is further reduced if it is considered to have been fallow for a long time. The final category known as the 'geometric step' concerns land within 80 metres of the sea and according to existing land laws this is not eligible for compensation.

The complexity of this system has been the cause of misunderstandings at all levels. Although a list of figures for compensation rates does exist (see Appendix 3) it is by no means clear that this has been applied in all cases. Several people said that the price was a subject of negotiation and quoted figures not on the list. Several PAPs said that the list of compensation rates only became used in the later stages after people had made clear their dissatisfaction with arbitrary nature of individually negotiated assessments, lacking any benchmark references. Some officials disagreed with this version of events insisting that there had always been set compensation rates.

j. Fallow land

One particular grievance concerns what villagers consider the unfair assessment of fallow land. According to some, a consulting company called TECSULT visited to inspect their lands in November 2004 and advised them not to bother cultivating their land in future because it was to be requisitioned. Other PAPs said that in 2004 a group of officials from different sectors including the government interviewed people, measured land and advised them to stop cultivating. One NGO representative knowledgeable of the situation speculated that it was probably the CAE. The villagers said they duly followed this advice, but consequently when the official assessment was made the following year their land was judged to be fallow. Villagers said they felt tricked and were aggrieved that they had not only lost a period of cultivation pending the assessment, but also lost much of the value of the land because it fell into the fallow category which is priced considerably lower. Although the NGO enlisted by QMM was aware of this claim, verifying it had not been explored.

k. PAP housing

New houses have been provided to PAPs in the form of wooden houses on a concrete base with a corrugated roof. Several PAPs complained that because they had been made from new unseasoned timber the planks had shrunk and left cracks which let in the rain. One person said: 'These houses are only good for the dry season, if it rains you can't get a good nights sleep.' One such house inspected had been repaired by QMM contractors to try and remedy the problem, but others complained that their requests for maintenance had not been met.

l. Information

Local people said that they didn't receive information from QMM and never had visits. One said: 'QMM never come to talk to us because they know that we are angry with them.' Another said: 'We only heard that they are going to build a port on the radio.' Radio was by far the most frequently accessed source of outside information and in most cases the only source of media.

However, QMM is not a homogenous block and has many representatives and associates. One NGO has been hired specifically to work with the PAPs to resolve grievances and implement development plans.

m. Wells

Some PAPs complained that open top wells in their old settlements had been contaminated by dust caused from quarry blasting. In the newly constructed settlements, wells have been constructed with a closed lid and pump handle. In one village people were unhappy that their well produced cloudy water and when the constructor was made aware of this he gave assurances that the problem would be fixed. Another complaint concerned a well which had been placed next to a grave-site where up to thirty bodies were said to be buried. Villagers said it showed a lack of respect for the ancestors and presented a health risk. Reports from a well constructor that some new wells had been vandalised were denied by the PAPs interviewed.

n. Increased numbers of compensation claims

By the time of the blockades, in addition to the existing claims needing to be resolved, around 300 new claims had arisen. QMM and their associates interviewed, were suspicious about the validity of most of these claims and this was reflected in the settlement. Some said that PAPs had recognised that there was compensation money up for grabs and so had made false claims thus increasing the total claims outstanding. Sixty claims were recognised as legitimately receiving compensation. Of the remaining 240, there appears to have been confusion. One official said: 'The government has already made some promises but they didn't realise that.' It appears that because of lack of clarity about their claims, the settlement reached was a reduced rate of land compensation of 100 Ariary per square metre instead of the official rate of 400 Ariary.

Some villagers on the other hand still complained that they had been left out of the process altogether. In several separate cases, people said that they had not attended the initial meeting with QMM only to find later that their name was not on the list of villagers registered as eligible for compensation.

A discussion with PAPs who had just moved into QMM constructed houses the previous day revealed that some people were without new houses. They said that some homeless people in the last village were homeless here too because compensation replaces existing property. Some villagers believed that QMM could have given them homes without too much trouble.

o. Accompaniment process

The accompaniment process is intended to give PAPs additional support to help them out of their situation by providing training and management support in investing their compensation money and additional access to micro-credit. Specific projects planned involve fishing, agriculture, handicrafts and teenage literacy. Access to additional sources of funding is also to be made available to the poorest people. QMM has committed US$50,000 to the micro-finance scheme and says it has asked its partners and suppliers to contribute likewise with the hope of raising US$1million.

Planning for the process is proceeding but appears to have been overshadowed by more immediate compensation issues and suffers the same lack of confidence by PAPs that the measures will not materialise. One PAP said: 'Not one of the PAPs has been able to set up a small project due to lack of money from the compensation process. There are plans to have a fishing project, a weaving project but we don't know when. There are plans but nothing happens.' Some outside observers claimed that because funding from QMM had stalled, the plans had to be put on hold, but this was not verified.

Questions for stakeholders:

- Has a lack of land for PAPs been demonstrated and documented to the satisfaction of the World Bank? If so is this assessment available?
- Have any assessments been done to compare the value of compensation for land with current land prices?
- How can communication be improved between the stakeholders responsible for organising compensation?
- How can the poor and marginalised be supported to ensure security of their homes and livelihoods?
- How can discussions about land reforms be widened to include more interest groups?
- How can the increased demands on local government best be met?
- Can the compensation package be re-assessed, taking into account local cultural values of land, cultivation, trees and plants?
- Will PAPs be able to return to their old homes once mine and port construction is complete?
- Can options be developed to enable PAPs to continue to manage or harvest their old lands?
- How can the reasons for the 2009 end date for compensation be communicated more effectively?
- How can the PAP’s confidence be restored in the accompaniment process?

Chapter 6

Contested land ownership

The mining project has had a significant impact on land ownership in the immediate vicinity of the mine and associated project infrastructure. Housing and facilities for workers is placing pressure on local hotel and housing stocks. In other cases local people are unclear about the fate of their land and have had their future plans interrupted or forced on hold.

According to a government source QMM is in no hurry to add clarity to the confusion about which land it has rights over because it gives it greater flexibility: ‘The land is not defined precisely. It’s not a priority for them to define the land because maybe at the government level they get what they ask for.’ However, a QMM spokesperson said that the exploitation permit clearly identified the perimeter boundaries to the concession.

A World Bank spokesperson offered another dimension to the complex situation explaining that the original resettlement plan was currently in the process of being amended because there have been changes to it brought about by unforeseen requirements by QMM for housing and other auxiliary needs. He said that: ‘The overall size of the land required has not changed much, but it is different plots of land. Which means new people are affected so we need a new resettlement strategy.’

a. World Bank Integrated Growth Poles Project

To understand the contested land claims they need to be placed in the context of broader regional development plans. The World Bank has used the mine project as a catalyst around which to construct a broader integrated multi-sectoral development project called the Integrated Growth Poles Project (see Appendix 1). At US$129.8 million the International Development Agency (IDA) loan represents by far the largest project in the World Bank’s Madagascar project portfolio. The remainder of the total US$304 million has yet to be secured but it is envisaged that it will come from a mix of private sector, donor and Government sources. The GoM contribution to the Ehoala port is earmarked within the IDA loan. The PIC is spread over three regions of the country: Antananarivo-Antsirabe, Fort Dauphin and Nosy Be. Although it focuses on three development regions a World Bank representative was clear that the mine had provided the political motivation, and this is reflected by the majority of project resources and activity currently being directed to the Fort Dauphin growth pole region.

An elaborate plan has been drawn up for Fort Dauphin which outlines big changes in all sectors from services like water and electricity to housing, markets and building the capacity of local government to administer the developments.

A high priority is to streamline and rationalise the land laws. In regard to the prime tourist locations a worker on the PIC project said: ‘The first job is to clear the land. Already there is work on land titling so that investors have no problem with access. Then it will go to international tender according to criteria. Not many local investors can do a US$8-US$10 million project.’

A new body the Economic Development Board of Madagascar (EDBM), has been created which according to the World Bank is: ‘basically an investment promotion and facilitation agency to encourage public private partnerships’. It provides an implementation body to, ‘leverage revenue investment.’ The EDBM is to be managed by the Government of Madagascar to take charge of land transactions. The World Bank hope that it will simplify land transactions: ‘so that the ownership of land by foreign investors is a much less painful process. We’re looking for large parcels of land for agri-business investment and opportunities for infrastructure.’

The PIC project is highly ambitious: ‘PIC will renovate the city. It will provide alternate housing for people in Fort Dauphin. We have to give them an alternative that’s attractive. New suburbs will be created.’

In its urgency to attract investors to implement the large scale developments the project is also pushing the pace of reform. Whilst the World Bank does recognise the intricacies and complexity of land reform it is keen to get things moving. One representative said: ‘I’m not saying at all that it’s something that can be solved quickly. But at the same time, for investors, for investments to take place, they need access to land.’

Many of the local people owning or occupying land interviewed, feared the worst for their situation and pointed to examples of people that they know who had had their land taken. This was magnified in areas known to be earmarked for mine operations or auxiliary developments. There was very little awareness about the ambitious and far reaching implications in the Integrated Growth Poles Project plans. The following two cases illustrate some of the concerns arising.

b. The case of Antaninarenina

Antaninarenina is a densely populated residential suburb of Fort Dauphin quite near the town centre. QMM intends to develop the education sector in town in order to provide schooling to its Malagasy workers, many of whom have arrived from other areas. They have earmarked a site for a high school in the suburb of Antaninarenina reported to be about one hectare in size. According to one source, the present occupants of the land had previously moved here at the request of the Mayor to make way for a hospital and so are reluctant to move again. However, the official landowner is willing to let QMM use the site and some claim the landowner has paid money to the Mayor to help facilitate this.

QMM has enlisted the support of the Mayor for the project and he has sent representatives from his office to discuss the situation with local representatives on two occasions, including once to measure the land. Locals were alarmed that the area of the entire suburb of 33ha appeared to be included in the measurement, far in excess of that required for the school.

To clarify the situation, the local people requested a meeting with the Mayor. When he sent his deputy in his car the local people decided to prevent the deputy from leaving and in that way the Mayor eventually arrived to retrieve his car and the situation. At this meeting the Mayor reportedly gave written assurances supporting local people and stating that people would not have to move from their land. However, people remain suspicious having heard other stories and rumours. People are afraid that if the project goes ahead they will have to move out of town. Some even mentioned a site about a one hour drive to the North which they claim has been earmarked for the purpose.

The lack of information, uncertainty and fear amongst local people surrounding this case has generated much gossip and rumour. Since it is clear that according to the current law many of the people living in Antaninarenina have no legal title to the land on which their homes are situated, they are highly vulnerable to eviction. This case illustrates the difficulties and tensions that can arise from undertaking development in the area and which can be exacerbated by a lack of communication between the parties involved.

c. The case of St Luce

The St Luce deposit is not scheduled for exploitation for many years but already big changes have taken place in the area. Local people are aware of the mine project and have been visited regularly in the past by QMM staff and associates, though they say that such visits have tailed off since the mine was given authorisation to go ahead in 2005. Despite previous visits, local people remain vague about the kinds of changes that will take place to the landscape in their area. They are also uncertain about precisely which areas are to be requisitioned for the purposes of the mine, which has given rise to widespread uncertainties and concerns in the community about the future fate of their lands and livelihoods. For example, several people said that they were worried that they might lose their coastal land and hence access to the sea which would spell disaster for them as a fishing community.

Local people said that they had, in the past, been informed of the extent of the mining area with landscape markers and it appears likely that village officials would have received maps (though the current village official said he had not). However, one incident had damaged confidence amongst villagers as to the truth behind previous explanations of the perimeter boundary demarcation of the mine. Eight villagers had entered into the sale of a plot of their coastal land to a tourism operator based in Fort Dauphin who wanted it for construction of a guesthouse. Having already paid 60 per cent of the price he was then told by QMM that as this land was within the mining requisition it could not be sold. The villagers discovered this when a topographical officer come to measure the area in question. According to the villagers it is common to sell pieces of land in times of need and in this case some of the individuals needed the money for food, school fees and to build a house. They said the incident had curtailed their ability to do future planning and had raised many doubts about the true extent of the mine area and its boundary.

An explanation by an official was that the mine exploration rights were different and much broader than for the more specific area granted for exploitation. As the transition of status is in process QMM may still be referring to the exploration area, although this idea was disputed by a QMM representative who asserted that the exploitation boundary was already well established by the mining permits.

Having not yet entered into any kind of discussions about loss of land and its compensation the villagers feel in limbo. There was very little knowledge of the compensation process and people had only heard about it on the radio in relation to the PAPs at the Port. One said: ‘They [QMM] don’t obviously claim the land but the thing is people can’t do what they want with the land. They can grow something on it and build houses on it, but they can’t sell the land.’ They made a plea for an explanation saying, ‘We really want a full explanation from the mining company about our land because it has never been explained to us.’

Questions for stakeholders:

- When will the new resettlement strategy be available and how will it be communicated to stakeholders to ensure widespread pick-up?
- How can local people be involved in defining and implementing the ‘Integrated Growth Poles Project’?
- What measures can be taken to ensure the transparency of the process of measuring and deciding the area designated to the building of the high school in Antaninarenina?
- When will residents in St Luce receive clarification about their land-ownership?

Chapter 7

Health and safety

QMM takes the health and safety of its workers seriously and has contracted a company specifically to ensure on-site safety including the wearing of site protective gear such as hard hats. QMM does not and is probably not in a position to extend such rigour to members of the local general public, who may be at a high level of risk due to carrying out their daily tasks in close proximity to the mine and associated operations. In some cases villages are situated near construction sites and this understandably makes separating the two more challenging.

Several people interviewed complained about the dust from traffic during dry periods. It was also reported that the number of road traffic accidents has generally increased but it has not been possible to verify this.

a. Quarry site

The access road to the resettled and existing hamlets comprising Ilafitsinanana community is frequently used by residents to travel to Fort Dauphin and the main road. People carry goods along it and herd their animals. At the time of visiting, two diggers were using the road and undertaking road widening construction along the edge. The three children passing by with their cattle had to pass within approximately three metres of a working digger.

b. Quarry blasting

One of the hamlets at Ilafitsinanana complained that on 16 February 2007 a large rock had fallen in the centre of the village as a result of blasting carried out by French company Colas. The rock, 25cm in diameter had buried itself in the sandy earth to a depth of about 30cm. Villagers said that this was not the first incident of this kind and that there had been some near misses. They had notified the company who had come to have a look and took a photo. According to villagers, the company said that soon a new company, Daiho, would be taking over the blasting from Colas and reassured them that they would be more careful.

The villagers were particularly unhappy that the case had violated a taboo of not having rocks in the centre of the village. The mining company had, according to them, promised to sacrifice a cow in the village to appease the situation.

Reports of rocks falling were independently reported by people interviewed in other hamlets. One woman who had moved home the previous day said that: ‘Over there we were suffering because of the dust and sometimes rocks fell on our houses and we had to run away.’

A senior QMM representative had no knowledge of these incidents. He explained that health and safety concerns had been a key reason for moving many of the 1000 people at risk. He also said that when blasting occurs good prior warning is given and that a 300 metre exclusion zone is set up around the quarry.

c. Existing Mandena access road

Pending the opening of the new Mandena road being constructed by QMM contractor Colas for mine use, the existing road is receiving heavy use by mine traffic including heavy plant. The area is highly populated with villages at regular intervals and there is a constant stream of local people walking along the roadside. QMM have installed road signs but a high volume of mine vehicles still travel at speed along this road in close proximity to pedestrians walking at the edge.

d. New Mandena road

The new Mandena road is being constructed by French contractor Colas, and at the time of visiting was well under way. At 18km long and ten metres wide it is designed as a haulage road from mine to port and is scheduled for completion by September 2007. The road runs behind the town and in order to secure the land, a complex land requisition process has been required. QMM say that they are in no position to police use of this road by local people. Instead, they say they will put in place pedestrian facilities such as pavements and underpasses.

Given the estimated levels of extraction this road will require heavy use. Whilst one World Bank representative said about one truck every twenty minutes, calculations based on projected extraction of 750 thousand tons of ilmenite and 25 thousand tons of zircon extracted annually, indicate a rate far in excess, more than one vehicle per minute. In addition to mineral haulage, considerable traffic will be generated by movements of site staff and their supplies, potential tourists and local road users (see Appendix 2).

e. Safety and environmental concerns of interviewees

This high volume of heavy traffic creates various safety and environmental issues. The concerns raised by those interviewed include, in no preferential order:

- pedestrian safety
- vehicle occupant safety
- noise pollution
- light pollution
- dust pollution
- vehicle emission pollution
- radiation pollution

Two particular issues of concern were raised more than others. Firstly, the question was raised whether the minerals were going to be transported in open or closed trucks. There were worries that open trucks would add to the problem of dust, or allow release of the radioactivity present in the minerals into the environment (QMM says its plans for the radioactive mineral, monazite, are to return it all to the ground onsite, so it is not scheduled for transportation).

Secondly, many people felt that high volumes of truck traffic in close proximity to the main beach was incompatible with the objective of attracting tourism. They thought it was an unattractive, noisy and dusty feature that would deter tourists.

Many local people are all too aware of the hindrances that the current decaying road system causes, particularly in regularity of transport of supplies. Most of them welcomed the general concept of road-building and considered it a positive contribution to development of the region. Many of them were, however, unaware of the mine traffic already scheduled for the road. In any case, high local expectations for the road look likely to increase yet further the traffic levels. As most local people are dependent on public transport or use ox-carts, carrying or herding, there will be a formidable mixture of transportation, from heavy haulage plant to pedestrian.

It is unclear as to how detailed has been the assessment of expected road use and the effects of this. Information about it was not readily apparent in the research undertaken. It appears that the burden that the new road will have to bear will be considerable and that pre-emptive measures to ensure road safety and other concerns such as pollution could prove invaluable once it is opened.

As well as good practice road planning, other particular measures might include:

- Explaining to local road users what to expect.
- Training in road use codes and conduct at all levels from pedestrians to herders and drivers. This should especially take into account the high levels of illiteracy.
- Anticipating an increased need for emergency services by building capacity in this sector.
- Exploring methods to mitigate pollution such as ensuring that plant vehicles are subject to regular particulate emission testing and do not use engine sizes that are higher than necessary for the job. Collective options such as bus services should be explored.
- Dust, noise and light pollution are likely to have negative impacts on local biodiversity and those tourists that come to see it, as well as the local population generally. Various options for their mitigation are familiar to road planners and should be explored for the suitability of their application in this context.

f. Petriky and St Luce access

After Mandena has been mined, Petriky and St Luce will respectively be exploited. Both of these sites are a considerable distance from the Port and so will require road haulage on roads that are currently degraded local roads. It is possible that the longer time-frames planned for exploitation of these deposits will give time for regional development to take place (such as through the PIC project) for road upgrades. However, the host of issues already faced by the dedicated Mandena access road will be exacerbated by the extended distances involved and the multiple user issues of the regular national road system.

g. Well placement

People in one of the Ilafitsinanana hamlets were unhappy at the siting of a well close to a grave site. Numerous headstones indicated that there were significant numbers of graves on the site and one villager said that there were 28. He was upset that water was being drawn from the ground in this area and considered it improper that villagers had no choice but to consume water from an area where the water might be at risk of contamination from the bodies.

h. Grave sites

Although the Malagasy mining code restricts mining on the site of graves, several sites are placed within the mine construction area and a number of incidents have arisen where they have been damaged.

One report from a government official said that a grave site had been destroyed accidentally by a Colas worker at the site of the new Mandena to Port road. The driver had no prior knowledge of the site on his plans and so was unable to take evasive action. It was claimed that the family did know of the site but were unaware that it was on the construction route and so had not notified the authorities.

The ‘failure’ of the family to notify the authorities was used as a bargaining issue when it came to compensation though eventually some oxen, rice and drinks were given along with assurances for a reburial of the remains. An official engaged in the situation said: ‘The information didn’t get to the local people. Most of the time when the project plans to do something they don’t tell anything about their plans. It is only when problems arise that they do something.’

Questions for stakeholders:

- Have claims about rocks from quarry blasting falling on PAPs villages been investigated and measures taken to prevent this re-occuring?
- How can the concerns of stakeholders about the new Mandena road best be addressed?
- Has any detailed assessment of the new road been made of the expected road use and effects of it?
- How can local stakeholders be included in discussions about how mineral ore is to be transported from Petriky and St Luce sites?
- How can project plans be better communicated to avoid accidents such as damage to graves?

Chapter 8

Environmental issues

Madagascar has been categorised as a 'biodiversity hotspot' because of its high diversity of unique (endemic) flora and fauna which are found nowhere else on earth. Whilst this situation has come about through Madagascar's relative evolutionary isolation, it now makes the country's ecosystems particularly vulnerable to disruption by invasive species that may have evolved in a more competitive environment. One example is the absence of large predators in Madagascar.

Since its inception the mine has attracted opposition from conservationists because the mine site corresponds with some of the last remaining fragments of littoral forest in Madagascar; and since this forest type is unique to the country its fate is considered to be of global importance. QMM has reported 64 species of endemic flora, found nowhere else (Ramanara, J. 2007).

The strip mining technique scheduled will require the removal of most of this forest. To appease concerns and demonstrate its environmental commitment, QMM decided to create two conservation zones at Mandena and St Luce on the ilmenite deposit, and to forego the estimated 12 per cent revenue of extracting these portions amounting to about 10 per cent of the site area.

QMM appears to have taken its environmental commitments seriously by setting up an environmental department and hiring four specialists. It has also developed a consortium of partner organisations including Kew Royal Botanical Gardens, Birdlife International, Missouri Botanical Gardens and the University of Madagascar among others. It has also formed the International Independent Advisory Panel of three specialists in their field: Keith Bezanson, Alison Jolly and Leon Rajaobelina, which meets twice a year and makes recommendations on issues of social impact, conservation and ecology to QMM and other stakeholders consulted.

a. Issues relating to the Social and Environmental Impact Assessment

QMM's efforts appear to have paid off as it claims its environmental programme is viewed within the mining industry as a benchmark for quality. This remains contested however, as the plans laid out in the Social and environmental impact assessment (SEIA) and their implementation on the ground continue to stir passionate debate among experts. Critiques fall broadly into three areas: firstly, discussion of the effectiveness of the SEIA mechanism as an assessment tool; secondly, specific commentary on how the SEIA mechanism has been applied to this project; thirdly, expert scrutiny and evaluation of the content of the QMM SEIAs.

The SEIA format is well established as the international benchmark by which the potential impact of development projects are assessed. However, the format has been criticised for not moving with the times by failing to incorporate important developments in environmental policy such as inclusion of the precautionary principle, which other regulatory frameworks have adopted.

Because SEIAs are commissioned by companies seeking approval for their own projects, the SEIA process has also been criticised for failing to provide a fully independent assessment. With specific reference to QMM a criticism has been made that limited options were considered and there was a lack of reference to the scientific knowledge available (Parrotta, 2001). The latter has the effect of choices being based on assumptions, when further inquiry could have provided more realistic options, particularly in reference to the forest restoration programme.

Spokespersons at the Malagasy Environment Ministry, however, saw no problem with companies managing their own SEIAs because firstly, the ministry has a say in which elements the SEIA should include. Secondly, they said that the process is set up so that a mining permit may only be issued once the SEIA had been completed to the satisfaction of the ministry.

However, several interviewees indicated that in the case of QMM, procedures had deviated from this due process for reasons of political expediency. For example, a government representative claimed the decision to grant the mining permit was made at a senior political level before the Environment Ministry had had the opportunity to complete all steps in the assessment process, thus bypassing procedures. They said, ‘We have to admit that the government has agreed to show QMM the terms of the quantity [of mineral] they are going to exploit. We cannot change their opinion at all. If they say this is the zone we are going to set for conservation we just have to accept it.’

One explanation offered for this procedural failing was that QMM was unlikely to want to invest the considerable resources in undertaking an SEIA without some kind of assurance that it would lead to permission being granted. This is well illustrated by the admission by QMM in the SEIA that it only covers the Mandena site and not Petriky or St Luce, though their scientific surveys have covered all three sites.

A further gap in SEIA coverage was raised in a claim made by a former QMM consultant. The original port site of Evatraha was rejected and changed to the site of Ehoala. However, according to the source, no new SEIA was carried out specific to this site, though some smaller monitoring studies have been done.

b. Historical perspectives of the forest

Much of the disagreement over conservation hinges around differing opinions about the condition of the forest on the mine sites and differing scenarios put forward regarding its future. For instance, in the SEIA 2001, QMM says that the forest is highly degraded and fragmented due to local use for fuelwood and charcoal. It puts forward a ‘no project’ scenario which concludes that within a short timeframe the forest areas would have completely disappeared thus, giving justification for the mine to destroy the forest instead.

While most ecologists and conservations agree with QMM that the forest, especially at the Mandena site, is degraded and fragmented, opinions differ about future scenarios. Most conservationists interviewed placed more faith in the ability of local people, the conservation community and government forest department, to maintain the existing extent of the forest.

Both of these positions have recently been challenged by the findings of Paleoecologist Malika Virah Sawmy. Paleoecology employs a number of criteria to reconstruct long-term landscape changes. These include reconstruction of historical vegetation, fires and climate using geochemistry of soils, Carbon (C14) dating and other techniques such as analysis of pollen samples. Sawny’s initial unpublished findings highlight some startling differences to the prevailing narratives of the forests being fragmented by human-induced environmental degradation. Her findings show that the matrix heathland (until now considered degraded littoral forest), has historically contained species distinct from the littoral forest and that it is characterised by different soil composition. The extent of the littoral forest on the other hand is historically defined by water sources providing a wetter environment than the matrix heathland. Her findings which have yet to be scrutinised by her peers, suggest that despite historical interference the littoral forest has maintained similar levels of species diversity.

The findings not only have implications for the existing descriptions of the processes involved but more importantly for the planning of future forest reconstruction. According to her theory it would be unwise to plant species found only in the littoral forest on the matrix heath area and vice versa.

Although she concedes that her work does not determine the historical boundaries of the forest and heathland with any degree of precision. Her work determining the boundaries of the forest areas is not however, an indicator of the extent of forest degradation inside the forest areas.

c. Mandena measures

The 230 ha Mandena conservation area comprises 10 per cent of the Mandena deposit. A further 20 per cent of the deposit area contains littoral forest cover. The remainder of the land where the deposit lies is open spaced ‘matrix heathland’ with plants, shrubs and trees growing on sandy, acidic, ilmenite rich soils. The area suffers from invasive *Melaleuca quinquenervia* trees which are a widespread problem in Madagascar since introduced by the French because they are aggressive self-propagators and spread rapidly. The Melaleuca root in water, changing the water table, and particularly reducing the habitat of *mahampy,* the reeds which women use for mat and hat making, and which are a chief source of women’s income.

At present, seed collection is taking place in the areas to be mined before the forest and topsoil are removed. QMM specialists claim that the soil on most of the deposit is too degraded to support pioneer species found in the littoral forest and say this narrows the choice of available tree species which can be used for reclamation purposes after mining.

The topsoil from forested areas is scheduled to be stored and later used to expand the conservation zone forest area by planting seedlings of littoral forest species currently being propagated from collected seeds in a tree nursery situated in the conservation zone.

The soil on the remainder of the mined area is considered by QMM specialists to be of poor quality and this will be compounded by the mining process. They therefore propose to plant exotic species on this area which they say can withstand the poor soils. This is also designed to meet local wood demand and to act as a carbon sink.

Soil quality is further deteriorated by the mining process itself which separates different soil components. According to one mining specialist who had studied mine regeneration at the St Richard’s bay ilmenite deposit in South Africa, the main problem is the separation of clay and sand which makes later mixing of soil components very difficult to achieve.

d. Consideration of rehabilitation with exotic trees

QMM have earmarked five exotic varieties from the acacia, casuarina and eucalyptus species which are undergoing tests as to their suitability to ‘rehabilitate’ 70 per cent of the deposit area with trees that can grow on the area and provide a source of energy and timber.

A wide body of opinion exists regarding the impact of exotic species on local eco-systems and QMM appear to be aware of the main issues saying: ‘We don’t want to introduce species that don’t already exist in Madagascar.’

Exotic species, especially eucalyptus, are extensively promoted by development practitioners such as governments, donors and NGOs. Their main attraction is that rapid growth rates enable fast afforestation, providing a wood resource for local people to utilise. Mine and NGO representatives considered that by providing alternative wood sources it would alleviate pressure on natural forests, currently a large source of charcoal.

Less consideration had been given to the displacement of natural forests that exotic plantations can cause. Experiences in other parts of the world highlight that promotion of exotic plantations can cause their rapid spread into natural forest areas or areas of degraded forest which often become converted to plantation rather than restored (Harbinson, R. 2004; Shiva, V. 1987).

Leaf litter from eucalyptus is known to be slow to decompose and chemicals in the leaves suppress native undergrowth therefore reducing biodiversity. The accumulation of leaf litter is also known to present a fire risk. QMM say that leaf litter decomposition varies between different eucalyptus species and in some (such as robusta) is not considered a problem. Also they say the level of rainfall in the region is high and this facilitates quicker decomposition.

It is argued that exotics can be a cause of forest degradation because they can exacerbate the spread of fire and deplete water sources (Lang, C. 2002; Shiva, V. 1987). In some instances they are also associated with the use of chemical pesticides which can inadvertently be spread to surrounding areas. QMM say that they are aware of these issues and so are experimenting with species which are fire resistant and grow back after fire: 'Fire is caused by local people, so we have selected species that grow after fire.' Although fire resistance would indeed provide protection to the plantation, it also provides the plantation trees with a competitive advantage which checks regeneration of native trees within the planted eucalyptus stands, by favouring the spread of fire that kills young trees. Although littoral forest is resistant to fire damage much of what remains is degraded and more vulnerable to fire damage. In this situation eucalyptus is well adapted to move into the spaces created by fire damage, which over time can contribute to displacement of native forest areas.

QMM say the high water use associated with exotics does not present a problem due to the high water table, and in any case high use does not hold true for all species. A spokesperson did caution that it was not a good idea to plant them next to crops or wells. According to Virah Sawmy, one of the main distinguishing characteristics of the littoral forest as opposed to the matrix heathland is that the littoral forest is situated in wetter areas. It appears that more consideration could be given to the question of the degree to which the extensive plantations might impact on the water sources of the littoral forest areas of the conservation zone.

Where plantations are considered to have an economic value exceeding neighbouring natural forests, landowners have an economic motivation to expand their cultivation. This has been known to result in additional acts of arson on natural forest as degraded forest is considered easier to convert both physically and legally. In other cases such economic advantage can end up having a profound affect on land ownership patterns as profits are returned into land conversion for plantation expansion (Harbinson, R. 2004).

QMM has done some work with communities to assess the social receptivity to exotics. However, the secondary social and economic impacts of using exotic species on the mined areas, on community land outside and the knock on effects this may have on land tenure, local economies and surrounding biodiversity, should continue to be explored in detail.

e. Perceptions of exotic trees

Several people interviewed explained that eucalyptus trees were disliked by local people, especially the elderly because of experiences in the colonial past. Under the French a programme of planting exotic species required local people to undertake unpaid work planting a quota of the trees with no benefits in return.

These days, however, more practical issues often override such memories. For example, one villager in the St Luce area explained that: 'The eucalyptus tree rots; it's not durable compared to the local tree species like *harajado [local name]*…here the water table is very high.' Wood quality for charcoal is also an economic consideration, for example exotics were considered by some to be of inferior quality to local forest species because they lack the same density and so cannot command as much in the market place. The native forest trees are slow growing, which leads to very dense, smoke-free wood, for both building and charcoal. However, this in turn makes this resource unsustainable for supplying the high local wood demand. A QMM spokesperson said that they are consulting with local people about how useful different exotic species are.

f. Local experiences of conservation

The setting up of conservation zones at Mandena and St Luce effectively deprives local people of a rich natural resource on which they have relied for generations for wood, food and medicines. Exotic plantations are part of a package of measures intended to provide alternative means of livelihood and compensate the loss of forest products. Another is eco-tourism raising income from entry fees to the conservation zone.

The setting up of the conservation zones has involved community level consultations and involvement to reach an agreement known as a 'dina'. Despite this villagers in St Luce remained unclear about the rules. Some said that their understanding of the original rules they had negotiated was different from those that they were now told to follow by conservation officials. For example, one interviewee said that in the beginning they thought they would still be allowed to collect firewood and honey but that this was not the case. A conservation official explained that collecting honey entailed chopping down the tree in which the hive was situated causing damage to the forest so it was later prevented.

Villagers said that not only have they lost their forest resource but that enforcement of the conservation zone placed a considerable burden on them which went unrewarded. They said the six forest police were local villagers undertaking this full-time task on a voluntary unpaid basis. On one occasion villagers had rallied together to extinguish a fire in the forest. Neighbouring villages, though entitled to a share of funds accruing from the zone, did not share in this management task. They said that unless the situation changed they may not be so inclined to put out fires in future, highlighting the lack of buy-in to the measures implemented.

Management of the funds from entry to the conservation is run by a co-management committee called the FIMPIA on behalf of the three participating communities. The village representative interviewed however, said his village had not received any funds and there were concerns about the non-transparent way in which they were administered. The issue was a bone of contention which had generated resentments between people in neighbouring communities.

One source of the confusion over the rules appears to arise from the administrative situation differing between on the one hand the FIMPIA co-managing the conservation zone and another community management committee known as the COBA which manages the forest areas outside the zone, to which villagers do have access, but which are still restricted by rules agreed between the forest service and the village. Five villagers had been fined 100 thousand Ariary each by the COBA for clearing a field at the edge of the forest and planting it with maize. It appeared that the fines, enormous sums in local terms, were unlikely to be paid. The individuals concerned were deeply distressed at the situation which one claimed was owing to ignorance and confusion about the rules.

This conservation zone is not alone in altering the social dynamics at the local community level. Investing managerial and policing powers in members of a community immediately alters existing power dynamics. In this and many other documented cases, members of the community have become criminalised for practices which they and their ancestors have carried out for generations and which have long been the socially accepted norm. Although attention has been given to involving local people in developing new rules and structures, there remain obstacles to the proper communication of these and a lack of buy-in by some local people. Differences between traditional and modern values and ways of managing the local environment have not been fully resolved and the confusion this has caused is leading to divisions within and between communities.

g. Expert concerns outstanding

Many concerns have been expressed by experts and stakeholders about the fate of the littoral forest and differences of opinion remain. A key argument expressed by several experts interviewed is that the limited size of the conservation areas and their relative isolation from natural forest means that they will inevitably suffer from genetic erosion which will over time reduce the species diversity to unsustainable levels.

Invasive species are of particular concern to Madagascar because of its island isolation which has not only protected many species by preventing foreign species arriving, but which also makes species more vulnerable to competition when invasive species do arrive. Increased movement of species due to globalisation was mentioned as a particular area of concern. With specific reference to the QMM project concerns have been expressed about the possible impact of ballast water from the large mineral ore cargo ships. Such water is known to be the source of transporting invasive marine species to other parts of the world, sometimes with dramatic consequences. QMM associates highlighted that there is a policy in place to ensure that ballast water is expelled well offshore so as not to influence the coastal marine environment. Critics point out that this is difficult to enforce and monitor and that the maritime sector has a poor record in this area.

h. Carbon footprint

Many companies are becoming increasingly aware of the impact of their actions on the environment and particularly how they contribute to climate change through the size of their carbon footprint. The mining industry globally is a significant contributor of greenhouse gas emissions. Although it is beyond the scope of this study to make a quantitative assessment, the QMM project contributes greenhouse gas emissions in the following ways:

- shipping of ilmenite and zircon to Canada
- air travel of staff and air freight of supplies
- production of construction materials such as cement
- manufacture of plant machinery, their importation and operation
- construction of port, roads and mine site
- electricity supplies based on diesel generators
- road based transportation
- loss of forest cover
- smelting of ilmenite into titanium slag – offshore

Questions for stakeholders:

- When will SEIA's be produced for Petriky and St Luce and how will these be assessed?
- How can local people be involved in identifying the effects of exotic tree species on land tenure, local economies and biodiversity?
- What communication strategies can ensure that local people have greater ownership of conservation measures that affect them?
- What is QMM doing to offset its carbon footprint?

Chapter 9

Dimensions of social development

a. Contested social conditions

QMM's social programme is designed to mitigate some of the negative effects linked to mining towns such as rising prostitution and associated diseases. They have also introduced strict codes of conduct on employees and contractors. The extent to which these provide suitable or workable solutions depends who one asks.

One of the factors influencing the degree of success to which working conditions laid out are met, is the level of buy-in not only by QMM staff, but also its contracted companies. The extent to which contractors are bound by the same rules developed by QMM primarily for its own staff was found to be a contested area (which accords with other similar cases).

Lending banks such as the World Bank are also aware of the difficulties of forcing work conditions on the original borrower and even more so, committing the borrower's contractors to conditions, with whom there is often no direct contractual linkage. Indeed such obstacles are historically regarded as a key reason why many investors and lenders have resisted imposing policies of social and environmental conditionality.

World Bank representatives interviewed were consistent in emphasizing the responsibilities of the Government and QMM to exercising compliance with the Bank's operational policies. Several people said that for important decisions World Bank staff were required to ensure compliance. Such decisions are usually specific to the details of a specific situation and so an element of interpretation and judgement is involved.

Rules voluntarily developed by QMM are part of its package of social and environmental commitments spelled out in the Rio Tinto guideline document 'The way we work.' Implementation of these aspects of its corporate social responsibility policy on the ground, is a process of development, and as the Fort Dauphin project is considered by Rio Tinto to be a pioneer flagship for many of these commitments, it often has few other examples of good practice implementation to be guided by, so in this sense Fort Dauphin may be considered an experimental testing ground.

Opinions offered by interviewers revealed that what may be regarded as a well intended policy by the company may be received differently by local stakeholders and indeed some local opinions did conflict with the aims of the policy.

b. Staff codes in practice

QMM workers are currently housed in a purpose built village compound of 62 houses complete with its own service infrastructure such as water and power. There is a strict 10pm curfew on workers which is written into contracts and punishable by dismissal. The rationale for this draconian measure is to limit the negative scenarios that have been documented to arise in mining towns the world over. Well-paid male workers from outside the locality and seeking recreation outside of work hours can attract lowly paid sex workers. With sexually transmitted diseases, especially HIV, a major concern, QMM is keen to avoid Fort Dauphin 'becoming a mining town.' So as part of its policy it requires medical checks when hiring workers.

Criticism of this segregation policy came largely from the town's business community and particularly the tourism and hospitality sectors. They are keenly aware of the assurances made by

QMM that the local economy would benefit from its operations. Several indicated that the self-containment policy illustrated by the workers compound was effectively limiting the extent to which they could benefit from worker's spending power, thus curtailing any beneficial trickle down effect. Several said that this was compounded by the decline in tourist numbers due to consequences of the project such as a scarcity in hotel rooms. One went so far as to indicate that even sex workers had a right to benefit from the project.

However, this was not a position shared by most, as illustrated by the charges levelled at QMM by groups especially concerned that the project will give rise to an increase in HIV and AIDS. Indeed it could be argued that the position that QMM has taken is testament to the advocacy success of NGOs. One did, however, say that the curfew was also at the insistence of the Malagasy Government.

However the worker's compound only houses QMM workers. Senior staff and workers from contractors Daiho and Colas reside in hotels and rented accommodation around town. For them there are no curfew restrictions.

One contractor said that his compnay had resisted the conditions demanded by QMM, considering them too onorous: 'In the beginning we had a code of conduct. We have been fighting it and wanted to lighten it.' The contractor had been successful in gaining concessions to the code which effectively gave the employees freedom around town. 'In the beginning some places were forbidden but I know that some of my colleagues go to bars,' he said.

c. Opinions about HIV and AIDS prevention

Several interviewees said that they thought the number of sex workers in town had increased since the start of the project. Others said that they had seen sex workers hanging around outside the gates of a contractor's compound. Others said that curfew rules would be hard to police and that men with money in their pocket and spare time would find a way to circumvent the rules.

For a small town there was evidently a high incidence of sex workers but beyond the opinions of those interviewed it is hard to establish whether the presence of the project is responsible for any changes to the situation. Comparative studies of sex work numbers before and since the project construction commenced are lacking and monitoring of the situation was not evident. One interviewee in the hospitality industry said: 'Where is the AIDS protection? It is not serious. There is no control or monitoring. We know them [the sex workers]. If there is monitoring there is precise information and the possibility to limit HIV.'

d. Drawing on good practice

Staff codes of conduct in response to the spectre of HIV and AIDS is one area in which QMM has had to develop its competence. Peer-to-peer education has been explored by the Sex Worker's Association with the support of QMM and has the potential to build on lessons learned in other situations where this approach has been found to be useful.

It is known that creating enabling environments which encourage family members to live or visit at the workers accommodation helps to reduce the numbers of workers seeking sex-workers. While QMM do make it possible for family members to stay it says this is the exception rather than the rule.

e. Perceptions and awareness of the mine

Seventeen market stallholders and shopkeepers were interviewed about their business and the developments in and around Fort Dauphin. Without any mention of the mine or port being offered people were asked to explain what the developments were for. Of this group nine said that they had heard of the mine and the port. However, seven claimed to have no knowledge of the mine or the port whatsoever, though most could describe other local developments, most notably road building.

All stakeholders from sectors to one degree or another involved in the project, expressed surprise that the percentage of local people without knowledge of the project was so high. While the small size of the sample cannot be considered more than a snapshot, other researchers have also experienced high levels of ignorance of the mine amongst target groups of people surveyed in the local population (Mulligan, 2000).

One explanation offered in the literature (WWF, 2001) and by interviewees was that as this is the first project of this scale in Madagascar it must be difficult for local people to comprehend as there is no existing precedent. With no national point of reference from which local people can construct an imagination of what the project entails, people have little idea about industrial scale mining processes.

f. Communication failures and initiatives

The majority of people interviewed mentioned deficiencies in QMMs communication efforts. Many cited it as the biggest single problem regarding the project. 'Our main concern is the lack of communication with the mining company because we don't know the reality of the situation,' said a community leader. Villagers at the St Luce site felt starved of information and said that since permission had been granted for the project their level of contact with QMM representatives had tailed off as they did not visit as frequently as before.

QMM have recently taken on board these criticisms by taking steps to improve the situation through a number of events and initiatives. For example, in March 2007 it held two 'Open house' days in Fort Dauphin. The event advertised on local radio drew considerable numbers of people and QMM experts were on hand to answer questions. QMM also plan to set up an information booth in the centre of Fort Dauphin. The existing information centre inside the Mandena conservation area has been criticised for being inaccessible to residents of Fort Dauphin. One development worker said: 'If your goal is really to talk to the local population you'd have opened an information centre in town. It just shows me it wasn't their goal.' Other initiatives include a radio station. Most people welcomed these recent initiatives though some regretted that they had not been done earlier.

It has yet to be seen how effective these initiatives are at filling the current gaps in perceptions, awareness, information and knowledge. Many existing development projects have considered communication to be a one way street of conveying information from project developers to local recipients. Contemporary development practice has a more sophisticated appreciation of communication. It considers communication as a multi-faceted process involving all stakeholders in inclusive discussions and debates in which even the most disadvantaged are heard.

g. Corporate reinvention

> '*Our track record in the past has not been lilly-white. We have come to a realisation that if we are going to work under a new paradigm, a new way of doing things that is socially and environmentally responsible, we have to do things differently*' QMM spokesperson.

By recasting itself through the adoption of principles of corporate social responsibility, Rio Tinto has repositioned itself both on paper through its espousal of CSR principles in ‘The way we work’ and on the ground through implementation of these ideas through its operations such as the QMM project. This shift involves cultivating a more complex pattern of relationships with a spectrum of development actors, some of whom are hostile to mining.

This process should be contextualised within the broader global collaboration between business and institutions which has given rise to development of public private partnerships. This new partnership deal between state, intergovernmental and business actors was signed and cemented at the UN Earth Summit in 2003 with formation of the UN global compact. Since then it has provided the dominant model of development finance which has increasingly grown to influence all areas of policy-making.

The shift is one away from adversarial and polarised positions characterised by companies defending their interests against critics, often from civil society, and towards increased dialogue and collaboration.

This new paradigm is not without its critics who highlight a disequilibrium of power between corporations and their partners. One concern raised is that the consensual process dilutes hard edged critiques and dumbs down independent and open scrutiny. This is compounded by patterns of dependence of peripheral groups and partners being subsumed into the corporate agenda through manifold ways from funding streams to new networks of research and patronage.

Proponents highlight that it is naive to leave corporations outside of policy-making processes because they are powerful actors already operating in ways which profoundly influence policy. So it is better to include them in debates and decisions about which they have an influence.

h. Recasting development?

The experience of QMM operations in Fort Dauphin provides a micro case study, reflecting debates about the role of the private sector in development, already well established in other arenas. It was widely recognised amongst those interviewed that the Fort Dauphin mining project has led the development agenda for the town, the Southern Anosy/Androy region and has been influential in shaping national development policies too.

i. National level

In many senses the project has started the ball rolling by being the first development project of scale involving serious capital investment. It is the scale and kind of development that appeals to both the Government and the World Bank. The effect of this has been for it to attract direct and complementary development support and for the project to feature prominently as a showcase example to attract similar schemes, or in the words of the World Bank to ‘provide a catalyst for similar FDI investments’. It reflects closely the priorities of PRSPs to promote the mining and tourism sectors. These themes are supported by the Madagascar Action Plan and the World Bank sponsored Integrated Growth Poles Project which have been profoundly influenced by the mining project.

j. Regional and local levels

At the in-country regional level the project enjoys support from a broad consortium of development actors on several different levels. USAID, a solid supporter of PPPs, has given the project its whole-hearted backing through a memorandum of understanding and funding. It plays a vigorous role in networking throughout the development community to connect and engage non-governmental organisations with the project's social and environmental activities.

NGO representatives interviewed in the region still take differing positions towards the mining project but none feel they can ignore it or oppose it outright. All agreed that it would be foolish to ignore the momentous changes taking place as a result of the project. Most said that the combined power of QMM and its backers made it very hard to openly and vocally oppose the mine. Many feared that if they did so they would risk jeopardising their presence in the country because they feared their visas may not be renewed. Some gave examples of cases where criticism had led to people being deported, hounded by bogus media or otherwise unknown agents.

Whatever the truth behind these claims (most of which were impossible to verify), it is clear that many stakeholders in the policy-making arena feel insecure in the political environment and are afraid to speak frankly and openly about their concerns for fear of reprisal. This atmosphere of insecurity was not found to be limited to either small institutions or those who had at one time or another opposed the mine. Similar sentiments were expressed by staff in the corporate, government and agency sectors.

This situation presents one of the gravest impediments to communication and moving forward through open and constructive dialogue. One which limits the potential of involving all the different sectors and their respective competencies. Indications are that confidence building initiatives to overcome this state of affairs would be widely welcomed and could play a constructive role in moving the debate forward.

Those who continued to oppose the mine in private had mostly shifted focus and engaged in projects which did not bring them in direct contact or conflict with the company. Some had initially been involved in associated projects but had become disillusioned and backed out or had had their funding cut. No NGOs interviewed took a position openly opposing the mine.

Other NGOs either collaborate with QMM directly on a contractual basis or alternatively take a position of 'due diligence' to maintain their independence in which they will not accept QMM funds but they will sit with them around a table to participate in collaborative development projects or debates.

By assuming the mantle of development actor, QMM has placed itself at the centre of local and regional politics. In some ways it is an unenviable position to adopt because it inevitably attracts criticism from different quarters. By stepping so firmly into the role of social and environmental development, the company has extended and stretched its core mandate into new and untested areas that extend far from its core competence of mining. Where other mining companies hire environmental and social consultants, QMM has created whole departments, often staffed with people from an NGO background.

At the core of this strategy of corporation as development actor exists a tension, especially at management level. QMM representatives interviewed were keen to discuss their new found development role, but always referred to the bottom line as being a mining company with a responsibility to deliver to shareholders.

Interviewees from the development sector offered a number of opinions to explain this paradoxical situation. One explained that the partnership between QMM and USAID had created the Global Development Alliance so that in effect all development projects in the region are linked with QMM. 'QMM makes donors pay them for development – there is something wrong with that system' they said, complaining about the lack of independence. Others questioned whether QMM had the necessary competences in development practice to be playing such a prominent role in the sector. A QMM spokesperson said, ‘I agree that we are a mining company and we wish to remain so, but we cannot afford to allow issues like HIV/AIDS, inflation, migration etc to get out of hand.’

Questions for stakeholders:

- What steps are in place to monitor levels of prostitution and evaluate the effectiveness of policies intended to limit it?
- How can local people with limited access to the media get informed about the project?
- What communications strategies can be explored to ensure that the views of the poor and marginalised are included in debates about the project?
- How can inclusive debate develop our understanding about the role of the private sector?
- How can stakeholder confidence be strengthened to ensure an atmosphere of open and inclusive dialogue?
- How can the mining company best involve stakeholders in defining its development role?

Conclusions

For Rio Tinto, The World Bank and especially the GoM, the project presents a substantial investment. As with any investment it presents both financial opportunities and risks. For the GoM a major consideration must be whether the disruption caused to the local socio-economic and environmental fabric by rapid change of this scale, is outweighed by the incoming revenue. Indeed, one of the major absences from the costing of this project are the secondary and often hidden costs which will fall on the Government, such as the additional burdens placed on government bureaucracy and services. Even where secondary costs are not taken into account, the significant financial cost of servicing the new loans risks adding further to considerable outstanding debts. Ongoing management of loan servicing provides in itself but one example of the additional responsibilities that the GoM has been required to take on.

To some observers, the total revenue income scenarios presented here may not appear particularly lucrative for the GoM, especially in comparison to the projected profits of Rio Tinto. It should be noted that these are estimates based on fairly sketchy information and so might be off the mark. In the absence of more detailed information and analysis, however, they serve as a rough-guide to interested stakeholders. A far better situation would be for the investing stakeholders to open their books and take steps to communicate to all stakeholders, the conclusions that their economists and accountants arrived at in assessing this investment.

One step towards greater financial transparency to be commended is the commitment by the GoM to the Extractive Industries Transparency Initiative (EITI), designed to ensure that the revenues flowing from the mine to the Government arrive safely in the government coffers and are not mysteriously diverted ‘en route.’

The findings of the World Bank Extractive Industries Review raised many questions about the risks of entering into mining project loans and some of these are mentioned. Since its publication in 2003, a growing body of research concerning the negative economic effects of mining projects, including by the Bank itself, has increased understanding of the issues. Despite this, the World Bank has not in this case altered its commitment to supporting this mine, because it considers the project an opportunity to attract FDI to stimulate the economy. Less apparent are the criteria and considerations by which the project was considered to be worth the risks and offer an overall positive contribution to Malagasy society.

The experience of implementing the QMM project so far illustrates just how difficult it is to impose a project of this scale on an isolated locality. Different world views, cultural backgrounds, needs and motivations, all contribute barriers to communication and ultimately common understanding.

It is to the credit of Rio Tinto that after many years of operations it has recognised that projects can no longer be imposed on local people and environments without taking steps to mitigate the negative impacts. The Fort Dauphin project provides Rio Tinto with a test bed for implementation of CSR measures, and so inevitably many of the ways of working have not had the benefit of experience to become as honed and responsive as they might be. This begs the question as to what extent Rio Tinto should take on development roles outside its core competence of mining. Many consulted for this report considered that it had over-extended itself, and lack of experience often showed. Two measures could improve this situation: i) that robust monitoring and evaluation is supported, preferably by independent, specialists; and that lessons learned inform development of CSR implementation strategies in future; ii) that it listens and learns from its peers in the development community to a greater extent, and gives them space and supports them in exercising their respective competencies. A major challenge for Rio Tinto is to overcome the temptation to exercise its considerable power by deferring to others where appropriate.

Many people held positive expectations about the benefits that the mine would provide and although it is early days yet, for many these have not arrived. Direct employment opportunities are limited and will reduce. The additional money in circulation from QMM's local expenditures does benefit some businesses but many say that the inflation this has caused outweighs the benefits. Inflation has severely reduced the levels of livelihood of most Fort Dauphin inhabitants and urgently needs to be addressed.

A major challenge is to overcome instabilities in the local economy which are stalling potential investments by businesses not directly associated with the mine. One way to do this would be for QMM and the PIC project to meet requests from the business community for regular meetings and discussions about both the economic trends to expect, and to seek ways involve more businesses in exploring viable opportunities.

Many of the problems arising have been due to differences in the working speed and capacities of the different actors involved. The speed of the mine, port and road construction is impressive indeed. Behind such visible manifestations a host of social and environmental issues remain unresolved, harbouring and accumulating resentments which serve nobody's interests, and if left unchecked risk spilling over into social conflict, as has already occurred with the port blockades. The resources and time required to carry out the proper resettlement and compensation of 1000 people have been underestimated by all responsible parties and too much of the burden has been placed on local government, which is under-resourced and overstretched. Capacity-building measures to support local government are arriving after the event, and in any case will take a long time to implement properly.

As the most experienced actor in this situation, the World Bank should take responsibility for failings in its advisory, monitoring and compliance roles. As a result it is in danger of contravening its own policy on resettlement by failing to provide PAPs with land of equal worth. All parties should resist the tendency to blame the PAPs for this situation occurring, as they have simply reacted to an inadequate and poorly executed resettlement and compensation process. Further steps to resolve outstanding grievances are required to prevent further loss of livelihood. Splitting hairs about the detail of compensation assessments rather than listening to legitimate concerns of the PAPs has proven counter-productive. The commitment of QMM and the World Bank to ensuring that the livelihoods of the PAPs should be as good if not better than before, has yet to be demonstrated.

Since mining permits were issued construction operations have centred on Mandena and the Port. As a result the concerns of outlying communities in areas that will be affected in future have become neglected. Community members said that communication about their situation was their highest priority, particularly because they are receiving contradictory messages about their property rights. Having not yet entered into any kind of discussions about loss of land and its compensation, the villagers feel in limbo and are unable to proceed with important aspects to their lives like land sales. Offering clarity to their situation and entering into compensation negotiations soon would help to overcome some of the compensation problems encountered elsewhere.

Changes to local property ownership taking place as a result of the project will be extended significantly by the measures of the Integrate Growth Poles Project and revision of the land laws. How this takes place will affect the ownership by local people of their homes, and their ability to own land in future. Already prices have risen out of reach of many and this trend looks likely to continue. Unless the situation is handled delicately it could easily create a two-tier system between the landless poor and landlords. The manner in which the land laws are revised, especially the degree of recognition that is afforded to customary land rights, will decide how equitable that system will be. Customary land rights are currently afforded a status below legal paper titles and ironically this acts against the interests of the original hereditary inhabitants and in favour of newcomers.

QMM could usefully apply its internal health and safety policies to those also affected by its operations. There is a marked contrast between the safety procedures applied to onsite staff and local people. In some cases the demarcation between on site and offsite is hazy due to shared rights of way. In these areas local people and livestock have no choice but to face undue risks from construction operations. The claims by people living in the vicinity of the quarry, of rocks from blasting falling on villages, should be quickly and thoroughly investigated. If true, robust measures should be put in place to prevent danger to life in future.

The new Mandena road is likely to attract high levels of traffic from a variety of contrasting road users, along with the associated risks this brings. Studies to determine the projected frequency of traffic, and anticipating the likely impact of mitigation and traffic control measures, would prove well worthwhile if accompanied by a package of measures to implement its findings.

Since mining permits have been issued, the debate about whether or not to remove fragments of littoral forest at Mandena has changed due to construction work in progress. It should be noted however that SEIAs are still awaited for the port, Petriky and St Luce sites. The debate on how best to restore and regenerate Mandena is very much alive and has been profoundly shaped, recently by findings in paleoecology, which should be taken into consideration. The use of exotic trees on the mined area could have far-reaching direct and secondary effects on the biodiversity and local people. Continuing research into these implications is welcomed and could be widened further by drawing on expertise and sharing and debating findings with local people, peers and experts, before any decisions are reached.

Some local people say they have lost out to conservation areas, not only due to loss of resources, but also because they place an additional management demand on them with insufficient remuneration in return. New conservation rules have not been properly communicated leading to the criminalisation of some local people and divisions within and between communities.

The project demonstrates the difficulties of implementing and enforcing safeguard conditions on third party contractors. Concerns about mine workers indulging in activities which contribute to the spread of HIV and AIDS are well established. How best to go about this is less coherent and QMM would do well to consult experts in the field more widely to strengthen its social programme.

Local awareness about the mine was low and indicates limited communication of information and is possibly a reflection of a lack of local awareness about industrial scale mining. Recent QMM initiatives to enhance communication are welcomed as this was considered by most of those interviewed to be deficient.

The extension of the role of QMM into socio-economic and environmental areas has required a shift in the political landscape. While some uncertainties have been generated by the changing power positions, other more worrying claims highlighted an atmosphere of fear of political persecution by vested interests. Encouraging an open climate of discussion and debate in which all views and opinions are considered and valued, provides a way to overcome political insecurity. In some circumstances, such as involving the poor and disadvantaged in discussions, it may be useful for stakeholders to play a pro-active role in ensuring their participation.

Photos

1. View of the quarry site to supply stone for the port, new Mandena road and mine. Reflective roofs of the houses built by QMM for PAPs can be seen bottom right.

2. Early stages of the port construction.

3. Road improvement works in Fort Dauphin by QMM contractor Colas.

4. Construction of the platform for the mineral separation plant at the Mandena mine site.

Appendix 1: Integrated World Bank Growth Poles Project

The project is intended to meet the following objectives:

1. Objectives

The overall purpose of the proposed project is to help provide the adequate business environment to stimulate and lead economic growth in three selected regional poles.

The specific objectives are to assist the Government to: (i) construct and rehabilitate critical infrastructure essential for sustained economic activity in the tourism, manufacturing, agribusiness and mining sectors; (ii) put in place appropriate incentive measures to achieve rapid growth; (iii) develop the instruments to ensure equitable, sustainable growth; and (iv) strengthen the capacity of local authorities to formulate, prepare, implement, and manage medium- and long-term integrated regional development projects.

Source: PIC project website.

Extract from the Project Appraisal document:

Component D: Mining and Tourism led growth in Taolagnaro

*(US$l66 million equivalent of which **IDA** will contribute US$55 million equivalent).* The project will create the infrastructure platform and regulatory environments to open up the landlocked region o f Taolagnaro to facilitate the growth o f tourism, agribusiness and to catalyze private sector growth in ilmenite mining. The infrastructure will be designed to accommodate a demand of 850 international-level hotel rooms by 2010. The principal activities under this component include: (i)th e adoption by the municipality of a tourism development master plan and urban development plan for Toalagnaro, (ii)th e development (under a public private partnership) of a new public port on the Ehoala peninsula to support the ilmenite mining operations and to facilitate market access for local production and exports, (iii)a partial rehabilitation o f the existing port of Taolagnaro to provide continuity for traffic during construction o f the new port; (iv) upgrading the access road network, and the main rural roads, which could also become a support to tourism activities; (v) upgrading the key public utilities services (power, water, sanitation, urban infrastructure and services and solid waste management) and telecommunications to support the growth o f tourism and other economic activities in the region, and (vi) upgrading o f selected urban infrastructures including the Tsiranana hospital. The project will provide support to the municipality of Taolagnaro, the local tourism authorities through technical assistance, training, rehabilitation [**Document of The World Bank, Report No: 31760-MG, PROJECT APPRAISAL DOCUMENT ON A PROPOSED CREDIT IN THE AMOUNT OF SDR 85.9 MILLION (US$129.8 MILLION EQUIVALENT) TO THE REPUBLIC OF MADAGASCAR FOR AN INTEGRATED GROWTH POLES PROJECT June 14.2005]**

Appendix 2: Calculations of potential traffic on Mandena Road

If trucks with a capacity of 40 tons are used to transport the minerals to port, 53 laden truckloads would have to travel from the mine to the port daily and this can be doubled by counting empty trucks returning the other way, making 106 truck journeys per day. Supposing that work takes place over 12 daytime hours this would mean a frequency of one heavy truck every 6.7 minutes. Although larger trucks could be used to reduce the number of journeys, their additional size would need to be considered in relation to their impact on other road users.

However the Mandena site will generate much more traffic than simply the transport of minerals, especially as the new offices of QMM and the separation plant will be located there. Most staff will then be travelling to and from work and the current favoured means of transport is by 4x4 pickup trucks. Supplying and servicing a site of this scale will also generate considerable traffic as supplies of fuel, food and maintenance equipment are delivered.

In addition, QMM and the World Bank are keen to promote and profile the area and mine as a tourist attraction and already there is a visitor centre at the Mandena conservation zone.

Taking conservative estimates for these additional journeys based on known and estimated variables, it is possible to project the following scenario of additional road use:

Additional daily journeys

600 staff commuting by four wheel drive: 150 x return = 300 journeys (supposes full vehicle occupancy).

Supply and service delivery trucks:	50 x return = 100
Tourist visits:	25 x return = 50

Total including mineral trucks: 556 = one vehicle every 1.3 minutes over a 12 hour period. This excludes any staff making more than one journey per day such as returning home for lunch as is common practice amongst Malagasies. As with any road system, there will be peaks and troughs in traffic frequency leading to much higher rates of traffic at certain times, for example, during rush hour or when a ship arrives in port for loading.

This scenario, moreover, excludes local road users who according to QMM will also be using the road at the same time. On the old Mandena road, which services a similar route, there is a high frequency of local road use, the majority being pedestrians but also herders, ox-carts and motorized vehicles. It is unclear whether studies have been carried out on the volume of local users. If not, studies to determine the projected frequency of traffic, and anticipating the likely impact of mitigation and traffic control measures, would prove well worthwhile.

Appendix 3: Compensation rates for land and cultivation

TABLEAUX DES PRIX ET VALEURS ADOPTES PAR LA COMMISSION ADMINISTRATIVE D'EVALUATION

I - TERRAINS

CONSISTANCE	unité de prix	PRIX	
		Terrains titrés ou en cours d'immatriculation	Terrains domaniaux objet d'occupation traditionnelle
Rizières	Ar/m²	4 100	2 500
Terrains cultivés	Ar/m²	2 000	1 700
Jachères	Ar/m²	1 300	1 000
Terrains nus	Ar/m²	1 000	-

II - PRODUITS AGRICOLES ET COMMERCIAUX

Produits	Cycle cultural ou nombre de campagne	Prix unitaire/Kg en Ar
Riz (Paddy) *	1 an	200
Manioc	1 an	240
Patate	1 an	300
Maïs	1 an	39
Voagnemba	1 an	67
Canne à sucre	1 an	2 000
Arachide	1 an	200
Ananas	1 an	120
Pervenche	1 an	26

III - PLANTATION D' ARBRES FRUITIERS ET ARBRES UTILITAIRES

Produits	Prix unitaire
Cœur de bœuf	10 000
Orange	60 000
Pêche	40 000
Mangue	100 000
Avocat	45 000
Jacquier	60 000
Coco	100 000
Letchi	130 000
Papaye	40 000
Banane	20 000
corossol	15 000
Sakoa (gevy)	30 000
Café	16 000
Eucalyptus	14 000

TERRAINS DE CULTURE	
	COUT
JACHERE - 5 ANS	240 Ar/m²
JACHERE + 5 ANS	100 Ar/m²

VALEURS DES CULTURES SUR EHOALA

SPECULATIONS	CARACTERISTIQUES	COUT UNITAIRE Kg/Pied
Riz pluvial	Semis brut en paquet de 20 X 15	35
Manioc	Buttée assosiée	160
Maïs	Variété peu productive plantée à grand écart	9
Patate	Cultures à plat sans buttage	135
Pois de cap	Cultures à plat	32
Potiron	Cultures associées	200
Ananas	Cultures associées	600
Vonemba	Cultures associées	48
Pervenche	Cultures associées	26
Cactus	En délimitation ou bocage	144
Coton	Pieds épars	1 200
Sisal	En délimitation ou bocage	400
Guatemala (Paniccus)	En délimitation	-
Banane		20 000
Kily		4 000
Filaos - Pin		10 000
Cocotier		100 000

TERRAINS DE CULTURE

	TERRAINS
JACHERE - 5 ANS	400 Ar/m²
JACHERE + 5 ANS et PLUS	100 Ar/m²

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Further resources on mining:

The African Development Bank Group, www.afdb.org

African Union, www.africa-union.org/

The Bank Information Center, www.bicusa.org/en/Issue.6.aspx

Bank Track, www.banktrack.org

Bretton Woods Project, www.brettonwoodsproject.org/

Earthworks, www.mineralpolicy.org/intl_program.cfm

Extractive Industries Transparency Initiative – DFID
http://eitransparency.myaiweb15.com/docs/sourcebookmarch05.pdf

European Bank for Reconstruction and Development (EBRD),
www.ebrd.com/about/policies/enviro/procedur/index.htm

European Investment Bank, www.eib.org

Final Report of the Roundtable on Mining and Indigenous Peoples Issues held by the ICMM and IUCN, www.icmm.com/publications/1438RoundtableReport-Final.pdf
Forest Peoples Programme, www.forestpeoples.org

Friends of the Earth International, www.foei.org

Global Mining Initiative, www.icmm.com/gmi.php

Global Witness, www.globalwitness.org/index.php

Good Practice Mining Website, www.goodpracticemining.org/index.php

IFIWatchnet, www.ifiwatchnet.org/

Indigenous Information Network, www.laneta.apc.org/rci/ing/

Indigenous Peoples Links (PIPlinks), www.minesandcommunities.org/Aboutus/piplinks.htm

Inter-American Development Bank, www.iadb.org/

International Alert, www.international-alert.org/index.php?page=home

International Business Leaders Forum (IBLF), www.iblf.org/

International Council on Mining and Metals, www.icmm.com/

International Institute for Environment and Development, Mining, Minerals and Sustainable Development work with indigenous peoples,
www.iied.org/mmsd/activities/indigenous_people.html

The Mineral Policy Institute, www.mpi.org.au/campaigns/policy/mineral_policy/

Nostromo, www.minesandcommunities.org/Aboutus/nostromo.htm

Partizans, www.minesandcommunities.org/Aboutus/partizans.htm

Publish What You Pay, www.publishwhatyoupay.org/

Tebtebba (Indigenous Peoples' International Centre for Policy Research and Education), www.tebtebba.org/index.htm

Transparency International. http://www.transparency.org/

Rio Tinto. www.riotinto.com

Rio Tinto Reports and Publications, www.riotinto.com/library/reports/community/default.aspx

United Nations Environment Programme Mining and Environment website, www.uneptie.org/PC/mining/mine_env.htm

World Bank Environmental Policy and Institutions, http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTEEI/0,,contentMDK:21024221~menuPK:1187810~pagePK:210058~piPK:210062~theSitePK:408050,00.html

World Bank Oil, Gas, Mining and Chemicals website, http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/0,,menuPK:336936~pagePK:149018~piPK:149093~theSitePK:336930,00.html

World Bank Status of Projects in Execution, 2006, www1.worldbank.org/operations/disclosure/SOPE/FY06/SOPEreportFY06-rev1.pdf

World Business Council for Sustainable Development, www.wbcsd.org

List of participants to the ICMM and IUCN's 2005 roundtable discussion (list taken from the final report to the roundtable discussions, http://www.icmm.com/publications/1438RoundtableReport-Final.pdf)