

# A Scoping of Impacts: Rio Tinto in Madagascar

Rio Tinto has invested over \$1 billion dollars to implement an ilmenite mineral sands project in southeastern Madagascar, in what is both a global biodiversity hotspot and one of the island's poorest and, until recently, more isolated regions. Madagascar is ranked 146 out of 177 countries in the Human Development Index (2006). It is one of the rare African countries to have experienced a steady drop over the past three decades in standard of living, despite having relatively advantageous natural and social conditions, and no significant armed conflict (Sarrasin, 2006:3). The Anosy region, where the project is being implemented, includes some of the nation's most underdeveloped and food insecure districts (WFP, 2005: 25). Despite these significant risk factors, the impact assessments of 2001 and 2005 neglected key areas of social change, many of which are likely to have the greatest impacts on women and on poor households.

## Overview of the Project

The project operates through a created entity known as Qit Minerals Madagascar S.A. (QMM) with 80% ownership by Rio Tinto and 20% by the Malagasy government. Extraction began early this year, and is expected to continue over the next forty to sixty years. The project has received significant support from the World Bank through its Integrated Growth Poles (PIC) project, which partially funded the construction of a \$200 million deep sea port. In addition QMM has entered into a public-private partnership with USAID called the Global Development Alliance (GDA) Anosy, which supports many of the activities designed to mitigate the social impacts of the mine.

A Social and Environmental Impact Assessment (SEIA) was done for the first of three deposit zones in early 2001, which received some well-publicised criticism (Conservation International, Worldwide Fund for Nature WWF, and Friends of the Earth). Most notably, the study does not differentiate impacts among vulnerable population subgroups such as women or poor households. There is a blurring between impactors and impacts which limits the scope and renders the logic of the proposed response measures opaque. The Government of Madagascar (GoM) conducted a second impact assessment in 2005 focussing specifically on the port and related infrastructures, which are funded by the World Bank group and thus must adhere to World Bank SEIA guidelines. This second impact study addresses some of the gaps in the earlier QMM SEIA.

Project activities within the QMM mineral sands project include the clearing of forest and wetlands to expose the sand; the construction and operation of mining infrastructures (mobile suction dredge, concentration unit, and separation plant), the creation of supporting infrastructures (deep sea port, industrial centre, roads, residential camps for miners, electrical power plant, water pumping station and weir, storage areas and administrative buildings), the establishment of conservation areas with barriers to access by local populations, and the rehabilitation and some restoration of forest and wetlands both within and without the three deposit zones. 750,000 to 2 million tons of ilmenite and zircon are expected to be extracted per year for over 40 years. The initial construction phase was completed in 2008. Extraction is now underway in Mandena, the first of three deposits to be exploited. Initial test drilling began mid-September in Ste Luce.

The following **key impactors** are likely to have specific or cumulative significance for the poorest households and for women:

- (a) *Resettlement of 498 people* in four settlements near the quarry, port, national road and residential camp. Livelihoods are based on agriculture, fishing, and small trade (GoM, 2007:17).
- (b) *Recruitment of 3591 staff* (engineers; builders, electricians, drivers, etc.) of which 374 are expatriates and approximately 1400 are Malagasy from outside the Anosy region (QMM, 2008:8). Many migrants have come with their families.
- (c) *Spontaneous migration*, particularly from rural Anosy and the neighbouring Androy region
- (d) *Increased accessibility of rural areas* along new roads
- (e) *Inflation* of consumer goods and land prices in Fort Dauphin-Tolagnaro and surrounding area due to increased demand and limited supply. The local market of staple goods such as oil and rice is controlled by a small number of intermediary merchants.
- (f) *Increase in funds and programmes for local community development* supplied directly by QMM itself, the USAID-QMM Global Development Alliance Anosy, and the World Bank Integrated Growth Poles project. The latter two projects are directly linked to the mine and are implemented through various international and local partnerships. In addition, the Anosy regional government will receive 70% of the funds from the 2% royalty on ilmenite, projected at \$21 million each year over the next 40-60 years (GoM, 2005:7-33).
- (g) *Positive and negative perceptions* of the mining project, effecting social well-being, land speculation, and tourism, among others.
- (h) *Temporary or permanent changes in access to natural resources* (medicinal plants, honey, wood, food, fish) from the barring of access to the newly created conservation areas, the construction of the port, the clearing of forest for mining, and from the progressive rehabilitation and restoration of forest and wetlands
- (i) *Disbursements of large amounts of cash* arising from employment opportunities and compensation payments. In 2007 each of 498 relocated individuals received an average of \$1,500 in addition to new housing, and 344 fishermen received an average of \$1,650 in compensation for temporary loss of access to fishing zones (QMM, 2008:16). As example, monthly revenue of fishermen before the construction of the port varied from \$0 to \$250 depending on the season (GoM, 2007:22). QMM and subcontractor salaries are equivalent to two or three times what was offered by government, NGOs and local business before the project began. Secondary construction phases will precede each shift into a new deposit area. Impactors (a), (b), and (c) listed above are expected to occur only during the initial construction phase, while the remainder will occur with varying frequency throughout the initial construction and operation phases.

## **Areas of Potential Social Impact**

### *The QMM Social and Environmental Impact Assessment (SEIA)*

The characteristics of local poverty and social exclusion determine how households and individuals respond to the dramatic social changes that the QMM mining project can be expected to engender. The QMM SEIA, however, fails to differentiate the impacts

on different segments of the population. In addition, there is a blurring between impactors and impacts, which ultimately reduces the scope of identified impacts and renders the logic of some of the proposed response measures opaque.

Vanclay (2000:3) defines social impact as an “experience (either real or perceived) of an individual, family or household, or a community or society.” It is not simply a change, such as inflation or loss of agricultural land, but rather the effects of these changes on specific people or groups of people. This might include, for example, a worsening of their economic situation or of their health. There is not always a definitive line between what might be considered an impactor or an impact; however, there are some clear examples in the QMM SEIA.

The “relocation of residential and commercial buildings” is a direct action of the project (impactor) which then may have multiple effects on individuals, households and the community at large. As a result of resettlement, for example, women may be forced to spend more time fetching water, and thus less time caring for children or generating revenue. Households may lose crop land or fruit trees, and so have less food to consume and increased food insecurity in the long term. The community may face a reduction in social cohesion, with increased conflict over resources or compensation packages.

Similarly, “migration”, “inflation”, “loss of agricultural land”, “loss of access to forests”, and “loss of customary land rights” are all listed as impacts in the QMM SEIA, when they should have been treated as impactors. As a result, the potential effects of these processes on people are never addressed with any preventative or mitigative actions. In this way, the purpose of social impact assessment has been subverted by its design and methodology.

#### *Key Areas of Social Impact*

Returning to the QMM project impactors discussed above, there are a number of key areas of social impact (adapted from Vanclay, 2000:6) that could have a disproportionate level of negative effects on women and on the poorest households and communities. These potential impacts are not analysed in the QMM SEIA (2001), although some were explored in the GoM ESIA (2005).

► **Change in economic situation of the poorest households** due to inflation; loss of tourism revenue; loss of access to aquatic, agricultural and forest resources. There are a number of impactors in this project which are likely to negatively effect socio-economic levels of different groups: resettlement, spontaneous migration, inflation of consumer goods and land prices, and temporary or permanent changes in livelihood opportunities. Two impactors may help to mitigate negative impacts: the increased accessibility of rural areas along new roads, and increase in funds and programmes for local community development, including education and health services, and infrastructures. As will be seen in more detail below, disbursements of large amounts of cash as compensation or payment for casual labour can be considered a potential mitigating measure, as well as an activity that may exacerbate gender inequities and decrease social cohesion in general.

World Bank mining and poverty policy guidelines (Weber-Fahr et al, 2001:448) state that for the poor, “mining represents dual risks: that they will be excluded from participating in the economic opportunities it offers and, at the same time, that they will bear many of the costs that result from the introduction of a mine in an undeveloped area.” The poor are less likely to gain employment due to a lack of

education and skills, yet they are more vulnerable to inflation, loss of access to natural resources, social tension, psychological stress, and risky coping strategies such as alcoholism, prostitution and child labour (Weber-Fahr et al, 2001:448-449, 452), all of which are closely intertwined with dramatic alterations in economic situation. In the absence of safety nets provided by local government or international organisations, and where local government is weak and susceptible to corruption, the likelihood of this impact is high (Weber-Fahr et al, 2001:454). In addition, where the depth and severity of poverty is already significant, shocks caused by rapid social and economic change can push poorest households into destitution, and effect their long-term future livelihood security.

Data is almost inexistent on poverty levels within the Anosy region (WFP, 2005b). According to World Bank, 926 of the predicted 988 people (or 94%) effected by the installation of supporting infrastructures are considered vulnerable, including resettled households (GoM, 2007: 9-10). According to local government, 57% of the population of Fort Dauphin is estimated to be either poor or destitute (Urban Commune of Fort Dauphin, 2004: 8). Inflation will most likely effect Fort Dauphin (population 46,000) and surrounding areas, which are dependent on the Fort Dauphin market for items of basic necessity such as oil and rice. The GoM estimates a total of 45,000 people directly effected by the project, either resettled or requiring compensation and/or mitigation measures (GoM, 2005: 6-110) but details on how this figure was determined are not provided. Given the variety of impactors that may effect economic levels, the high levels of poverty that exist already within the project area, and the potential numbers of effected people, the importance of this impact should be considered high.

► **Change in levels of psychological stress** among the poor due to rapid economic and social change. There are few studies linking mental health or stress to mining operations in developing country contexts, except among the expatriate workforce. The GoM ESIA states that rural populations employing traditional livelihoods are most subject to stress because they are expected to experience the most significant change (GoM, 2005:6-117), including resettlement and large compensation payments. It can be argued, however, that the scale of change in Fort Dauphin should also be considered, as there are a greater number of potential impactors and impacts effecting the urban population: the arrival of 400 international workers with a vastly different culture and consumption habits, increased vehicle traffic, spontaneous migration, the resulting squeeze on infrastructures and services (water, electricity, roads), inflation of basic goods and land prices, reduced spending power, change of place, increase in prostitution, and increased risk of HIV/AIDS and other sexually transmitted diseases. Psychological stress can in turn lead to destructive behaviour and negative outcomes, such as alcoholism, risky sexual practices, violence and divorce.

According to local government, 57% of the population is classed either poor or destitute (Urban Commune of Fort Dauphin, 2004: 8). The GoM ESIA estimates that 926 of the estimated 988 rural people (94%) effected by the installation of supporting infrastructures are considered vulnerable, including resettled households (GoM, 2007: 9-10). Poor households and individuals are likely to suffer most from worsening economic conditions, in addition to the aggravating factors mentioned above, and thus the likelihood of an increase in psychological stress among the poor is high. Potential counselling and treatment services are almost non-existent in the project area. Given the high likelihood and potential extent, the importance of this impact should be considered high.

### ► **Change in levels of social tension and conflict within the communities**

There are a number of project impactors that may directly or indirectly lead to increased social tension, including resettlement, immigration, inflation, increase in funding (and thus competition) for local community development, temporary or permanent changes in livelihood opportunities, and disbursements of large amounts of cash arising from employment and compensation payments. Glenn Banks documents the effects of cash on social networks and cohesion in Papua New Guinea and the “straining of social relationships and a general rise in feelings of insecurity due to increasing numbers of ‘faces we do not know’, migrants who are not part of their existing social universe” (Banks, 2006:262). Much empirical evidence points to mining as the cause of rising economic inequities (ICMM, 2006:3, citing evidence from Peru, Ghana and Chile), which also leads to conflict.

Ballard (2003:302) argues that monetary compensation given to individuals can be a prime cause of social disintegration in societies with little prior experience of large sums of cash and few mechanisms to ensure equitable distribution of these and other benefits. In addition, there may be among the poorest segment of society an increasing stigmatisation, as their economic situation worsens and socially less acceptable means of generating income and livelihoods are adapted, such as gathering resources in protected areas, charcoal-making, prostitution or crime. Weber-Fahre (2001:454) points to the potential for traditional hierarchies to be subverted, as community elders are perceived as no longer having the knowledge to negotiate on behalf of the community.

Rising social tensions and conflict are most likely in the five communities where compensation payments are to be made, and in Fort Dauphin, where there are high levels of immigration and inflation. The likelihood of violent conflict is moderate: there has been violent popular protest against merchant Karan (related to high prices) in the recent past, but it was smaller in scale than elsewhere in Madagascar such as Tuléar, the provincial capital. Given the variety of impactors that might affect social tension, and the wide geographical area, the importance of this impactor should be considered high.

### ► **Change in gender relations within the household and the community**

#### *Gender and Social Exclusion in Anosy*

To determine how gender relations might be effected by the project, it is first necessary to understand the dynamics of gender and social exclusion within the project area. The population of Anosy is comprised primarily of ethnic Antanosy and Antandroy. Social exclusion is influenced by clan, wealth, gender, age and ethnicity. Social relations among both the Antanosy and Antandroy are dominated by clans with male hereditary leadership. Communal agricultural activities such as planting or plowing are done only within the same clan (Marcus, 2008:94), as are sacrifices of *zébu* (cattle) to encourage good rains. Villages are often widely dispersed settlements of households belonging to more than one clan (FIDA, 2000:11), and thus can have multiple leadership structures<sup>4</sup>. In rural Anosy, poor households often farm land far from the village, and the extended time spent away diminishes their influence in village affairs, and their ability to participate in meetings or *dina* (a traditional local governance mechanism akin to a social contract, often used to manage communal resources) (Marcus, 2008:29). A review of an International Fund for Agricultural Development rural development programme in Betroka

and Ambosary districts found that local elite successfully discouraged participation of landless households in project activities despite this group being specifically targeted, and they subverted anti-fire measures put in place by the project (FIDA-PHBM, 2005).

Women in Anosy face particular barriers when seeking to obtain social and economic benefits. According to an IFAD study (FIDA 2000:11-15) women do not participate in village assemblies or *dina*. Women who speak in public are thought to bring dishonour on the family; and, meetings held with women are considered to be unimportant and inconsequential. Within the household, Antanosy and Antandroy women have disproportionate work loads vis-a-vis the men. Weak levels of associational life combined with rigid social hierarchies based on clan leaves little opportunity for marginalised women to voice their opinions and needs, or ensure that these are considered during local development processes (WWF, 2005:49). Marcus (2008:104) finds particularly low levels of voluntary association in comparison with elsewhere in Madagascar: as few as 40% of the population in Anosy participate in any type of informal or formal organisation, including *dina*.

#### *Likelihood and Significance of Change*

Numerous studies have shown that mining operations have disproportionate negative impacts on women, particularly in developing countries (Macdonald and Rowland, 2002; Ballard et al., 2003:300). The majority of local employment opportunities brought by the mine are in the traditionally male occupations of construction, machine operations, and security. Male absenteeism resulting from migration leaves women with greater responsibilities and increased work burdens. Benefits from compensation payments made to men are not always distributed equitably within the household. Resettlement and changes in access to natural resources increase women's workloads. Finally, large influxes of cash through employment or compensation payments are associated with increases in domestic violence (Ballard et al, 2003:300, Weber-Fahr et al, 2001:452). These added pressures are all present in the QMM project, and are very likely to cause a deterioration in gender relations within the household and within the community.

Secondary data is almost inexistent in Anosy, and none of the existing project data is disaggregated for gender. Nationally 50% of the population is female, indicating there may be 20-25,000 women effected in the immediate project area, based on the GoM estimate of 45,000 effected (GoM, 2005: 6-110). In addition, 1100 Malagasy from outside the region of Anosy are employed by the mine and supporting infrastructures (QMM, 2007:1); however, there is no differentiation by gender. Nor is it known how many of the 1800 employees from Anosy are migrants to Fort Dauphin and thus have left their families behind. Few women have been employed thus far by the project (GoM:, 2005:6-108). Given existing empirical evidence demonstrating the probability of negative impacts on women, the variety of impactors effecting gender relations and the numbers of women that may be effected, the importance of this impact should be considered high. Potential impacts to monitor include changes in women's workloads, levels of gender-based violence, and levels of women's social and economic empowerment.

#### ► **Change in tourism revenue and in potential for ecotourism**

##### *Overview of the tourism sector in Madagascar*

Tourism is one of the top three suppliers of foreign devise in Madagascar (Christie, 2003: 63). The number of tourists nationwide has doubled over the last seven years, and was estimated at 313,000 visitors in 2007 based on immigration data. (Consulate of

Madagascar in France website). An estimated 55% of tourists in 2000 came for ecotourism, and 19% came for its pristine beaches (Christie, 2003:14). Madagascar is one of the world's biodiversity hotspots, and thus has a high potential for ecotourism. According to WWF "approximately 92 percent of Madagascar's reptiles, 68 percent of its plant life and 98 percent of its land mammals, including lemurs, exist naturally nowhere else on Earth." 60% of tourists to Madagascar are French (Christie, 2003:2). Tourism is a key economic sector in national, regional and local development planning (GoM, 2005:7-36).

#### *Likelihood and Potential Significance of Change - Tourism Revenues*

Fort Dauphin is the third most visited city in Madagascar (Urban Commune of Fort Dauphin, 2004:7), and its airport is the only entry point for tourism in the region due to the area's lack of viable roads. There were an estimated 88 000 visitors to Anosy in 2003. The local environment office catalogues 17 tourism sites in Anosy, of which 11 are located within or adjoining the project area (National Environment Office website). Positive and negative perceptions of the mining project influence a change in tourist revenue, specifically by increasing or decreasing the numbers of tourists who chose Fort Dauphin as a destination. Attitudes of potential tourists may easily change, and the impacts may thus be temporary, but close monitoring is nonetheless required.

Tourism may have significant benefits for the region's poor households and communities. Global empirical evidence suggest that the poor receive one fifth to one third of the revenue generated by tourism (Mitchell et al, 2007: 2). Benefits accrue through formal or informal employment, park entrance fees, local craft and service markets, and other support activities. Tourism is a pro-poor development sector, because it is labour intensive and because the greatest share of employment goes to the unskilled and to women. The poor are thus likely to suffer most from a reduction in tourism revenue.

There is a high likelihood that the installation of a large scale mining project will discourage tourists from coming to Fort Dauphin. The mine and its potential impacts are widely discussed on internet websites focussing on tourism or on environmental issues. The latest edition of Lonely Planet, for example, recommends that tourists avoid Fort Dauphin in favour of other industry-free regions. It argues that the mine has ruined the pristine nature of the area and that local hotels are overbooked by staff and consultants associated with the mine and related projects. Other criticism concerns the deep sea port which is in direct view of the town's longest and most visited beach, and which causes significant light pollution at night (WWF, 2005:49). In addition, there will be very high levels of heavy-vehicle traffic, estimated at one truck every three to four minutes for sixteen hours per day (GoM, 2005:6-102), and also large ships using the new port.

QMM has initiated a series of actions to improve tourism in and around the project area, including the creation of botanical trails and other infrastructures in the three conservation zones established in Mandena, Petriky, and Sainte Luce. In addition, Mandena provides a biologically different environment from the other frequented ecotourism sites of Berenty, Andohahela, Nahampoana; and thus complements the existing offer (WWF, 2005:48). QMM biologists have trained national park guides in order to improve their knowledge and professional capacity. These actions can be seen as positive, but are unlikely to outweigh the overwhelmingly negative factors mentioned above.

The numbers of people currently employed in tourism and supporting sectors is unknown. The Anosy environment department estimates that 9% of investments in the

region are in hotels and restaurants (ONE website). Given the potential importance of tourism for local livelihoods, the high likelihood of at least a temporary decline in tourism as a result of the mine, and the unequal burden that a significant reduction in tourism would have on the poor, the importance of this impact should be considered high.

#### *Likelihood and Potential Significance of Change - Potential for Ecotourism*

According to the International Ecotourism Society, ecotourism is the “responsible travel to natural areas that conserves the environment and improves the well-being of local people” (TIES, 2006:1). It is an integral part of the regional and urban development plans (GoM, 2005:7-36); however, there are many risks associated directly or indirectly with the mine that may negatively impact the long term potential for ecotourism. These include the heavy traffic of large ships and trucks, light pollution from the port at night, and cruise tourism, which is expected to develop as a result of the new port facilities. Adapting port design to allow for cruise ship docking has been put forward as a mitigating factor for any potential loss in ecotourism revenue, in both the QMM and the GoM impact assessments. This assumes that cruise tourism and ecotourism are interchangeable; and more specifically, that the same population benefits from either type of tourism. Ecotourism, however, distributes significantly more benefits to local communities than package tours. According to the International Ecotourism Society (TIES, 2007:2), 80% of the money spent on package tours goes to airlines, hotels, and other international companies. Ecotourism establishments, on the other hand, hire and purchase locally, and sometimes put as much as 95% of money into the local economy .

In Madagascar, a 2000 visitors survey showed that independent tourists spent two times as much during their stay than package tourists (Christie, 2003:22). The design of the survey did not allow for the analysis of hotel costs, but it can be assumed that money spent on lodging is distributed more equitably through independent tourism, among medium and small guesthouses, and not only the large hotels frequented by package tourists. Finally, it must be noted that cruise ship passengers elsewhere in Madagascar sleep at eat on board, due to a lack of sufficient quality infrastructures and services on land (Christie, 2003: 32), so that very little money is spent locally. Thus the likelihood that local communities, and more particularly the poor, will benefit from revenue generated from cruise ship tourism is low.

In addition, ecotourism is incompatible with cruise ship tourism, as it requires rich biodiversity and natural landscapes, free from visible industrialisation, traffic and pollution. Much has been written on the negative environmental impacts of cruise ships. A study of cruise tourism in the Caribbean (Johnson, 2002: 264) highlights the pollution of the coasts, harbours and sea floor; the destruction of marine habitat such as coral reefs; the degradation of water resources; public health issues among local populations due to large numbers of tourists; and waste disposal issues. Cruise ships generate enormous amount of waste, estimated at 70,000 tons per year in the Caribbean (TIES, 2007: 1). According to the US Environmental Protection Agency, waste streams generated by cruise ships include bilge water (water that collects in the lowest part of the ship’s hull and may contain oil, grease, and other contaminants), sewage, grey water (waste water from showers, sinks, laundries and kitchens), ballast water (water taken onboard or discharged from a vessel to maintain its stability), and solid waste (food waste and garbage). Globally, it is estimated that the average cruise ship carrying 3000 passengers produces 1 kg combustible waste, 0,5kg food waste and 1kg glass and tin waster per



person per day; one million gallons of grey water per week; and sometimes even hazardous chemicals (dry cleaning, photo processing, printing) (Johnson, 2002: 265).

Local carrying capacity is crucial in order to successfully manage the wide scope and scale of potential environmental impacts associated with cruise tourism. Current cruises to Madagascar support between 200 and 2000 passengers per boat (Christie, 2003:33 ), thus having the potential to bring significantly larger numbers of tourists at one time than the only currently available option of air travel. Fort Dauphin has considerable difficulties both in terms of water and in waste disposal (Fort Dauphin Urban Commune, 2004). Given the importance of ecotourism in local development planning, the incompatibility between eco- and cruise tourism, and the likelihood of the effects being long-term, the importance of this impact should be considered high.

## Conclusion

The Rio Tinto project is a large-scale mining operation in an underdeveloped and poor region of Madagascar. Livelihoods are primarily based on subsistence agriculture, fishing, and small-scale commerce. The potential for significant impacts, particularly on vulnerable segments of the population such as women and poor households, is extremely high, yet these are not addressed in the original QMM impact assessment. As the mining operation moves forward, and preliminary SEIA studies for the second deposit at Ste Luce are now underway, it is crucial that this gap be rectified, and that a proper monitoring system be put in place to protect those who are at most risk. As it is, the risks are being unduly carried by those who were, and remain, the most in need of the mine's potential benefits.

## References

- Ballard, Chris. 2003. Resource Wars: The Anthropology of Mining. *The Review of Anthropology* 32(2003):287-304.
- Banks, Glenn. 2006. Mining, Social Change and Corporate Social Responsibility: Drawing Lines in the Papua New Guinea Mud. *Globalisation and Governance in the Pacific Islands*. Chapter 8.
- Conservation International. 2001. Review of an Ilmenite Project in Southeast Madagascar.
- Christie, Iain; and D. Elizabeth Cromden. 2003. Republic of Madagascar: Tourism Sector Study. World Bank Africa Region Working Paper Series No. 63 (E).
- Consulate of Madagascar in France. Undated. Madagascar en Bref. Website accessed October 2009. [http://www.consulatmad.org/sommaire/6\\_madagascar\\_enbref/textes/vie\\_pratique.htm](http://www.consulatmad.org/sommaire/6_madagascar_enbref/textes/vie_pratique.htm)
- Environmental Protection Agency. Cruise Ship Water Discharges. Website accessed October 2009. [http://www.epa.gov/owow/oceans/cruise\\_ships/](http://www.epa.gov/owow/oceans/cruise_ships/)
- FIDA (IFAD). 2000. Projet Haute Bassin du Mandrare. Rapport de Préévaluation.
- FIDA (IFAD). 2005. Projet Haute Bassin du Mandrare. Evaluation Mi-Terme.
- Government of Madagascar. 2005. ESIA Vol. 7 of the Integrated Growth Poles Project

(PIC).

Government of Madagascar. 2007. Amendements au Plan de Réinstallation pour la Mise en Oeuvre du Projet Ilmenite de QMM SA à Tolagnaro.

International Council on Mining and Metals (ICMM). 2006. The Challenge of Mineral Wealth: Using Resource Endowments to Foster Sustainable Development. Spotlight Series 02.

International Ecotourism Society (TIES). 2006. Ecotourism Fact Sheet. Website accessed October 2009. [www.ecotourism.org](http://www.ecotourism.org)

Johnson, David. 2002. Environmentally Sustainable Cruise Tourism: A Reality Check. *Marine Policy* 26 (2002): 261-270.

Lonely Planet. Fort Dauphin. Website accessed October 2009. <http://www.lonelyplanet.com/worldguide/madagascar/fort-dauphin/>

Marcus, Richard. 2008. Tòkana: The Collapse of the Rural Malagasy Community. *The African Studies Review* 51(1):85-104.

Mitchell, Jonathan; Caroline Ashley and Shaun Mann. 2007. Can Tourism offer Poor-Poor Pathways? Overseas Development Institute (ODI) Briefing Paper 22.

Macdonald, Ingrid; and Claire Rowland, ed. 2002. Tunnel Vision: Women, Mining and Communities. Oxfam Australia.

National Environment Office (ONE). Undated. Website accessed October 2009. [http://www.pnae.mg/ie/kit\\_region/anosy/resume/j\\_anosy.doc](http://www.pnae.mg/ie/kit_region/anosy/resume/j_anosy.doc)

Qit Minerals Madagascar. 2007. Social and Communities Fact Sheet. RioTinto madagascar website. <http://www.riotintomadagascar.com/library/publications/index.html>

Qit Minerals Madagascar. 2008. En Routes vers un Développement Durable: Rapport Annual 2007.

Sarrasin, Bruno. 2006. Economie du Développement Minier à Madagascar: l'analyse du projet QMM à Tolagnaro (Fort Dauphin). *Vertigo* 7 (2):1-14.

Urban Commune of Fort Dauphin. 2004. Project d'Enlèvement et de Gestions des Ordures Menagieres.

Vanclay, Frank. 2000. Social Impact Assessments. Thematic Review Version 2.

Weber-Fahre, Monika; and John E. Strongman, Ramani Kunanayagam, Gary McMahon, and Christopher Sheldon. 2001. Mining. World Bank Policy Guidelines on Poverty Reduction, Vol II, Chapter 25. [http://povlibrary.worldbank.org/files/4251\\_chap25.pdf](http://povlibrary.worldbank.org/files/4251_chap25.pdf)

World Food Programme. 2005a. Comprehensive Food Security and Vulnerability Analysis of Madagascar.

World Food Programme. 2005b. Madagascar: CSVA Collecte et Analyse des Informations Secondaires.

Worldwide Fund for Nature (WWF). 2005. *An Update on the QMM Mining Project in the Anosy Region*.